

Journal

Oct 1884



Itinerary of the trip from Capt. J. V. Bourke's note-book:

- Oct. 1. Whipple to Verde 42 miles Verde to Clear Creek 6 miles, Total 48 miles.
" 2 Clear Tanks 15 m.
" 3 Spring Under Baker's Butte (Pine Cr.) 15 m. Bear killed.
" 4 To General Springs 12 m.
" 5 To a Ravine in Mogollons 23 m.
" 6 To head of a Fork of Canon Creek 16 m.
" 7 To fork of Canon Creek, coming in from E. 16 m.
" 8 To Cibien Creek 21 m.
" 9 To Carrizo Creek 16 m.
" 10 To Forestdale 20 m.
" 11 To Mail-road 16 to 18 m.
" 12 To Apache 14 m.
" 13 At Apache.
" 14 Black River 20 m.
" 15 Camp Henty (Aik Creek) 23 m.
" 16 Gila River 18 m.
" 17 San Carlos 13 m.
" 18 At San Carlos.
" 19 Coyote Springs 15 m.
" 20 Wheat Fields 24 m.
" 21 "Mesquite Springs", 21 m.
" 22 Yonto Creek 21 m.
" 23 Wild Rye, 23 to 24 m.
" 24 Pine Creek 21 to 22 m.
" 25 Fossil Creek 14 m.
" 26 Verde 18 to 20 m.
" 27 Whipple 42 m.

Notes on the Natural History of the Expedition
conducted by
Brig. Genl. George A. Crook, U. S. A.,
Commanding the Dept of Arizona,
From Whipple Barracks, Prescott, A. T., to San
Carlos Indian Agency, via Forest Dale and
Fort Apache, and thence back to Whipple Barracks,
via Globe City, Fossil Creek, etc, between the dates
of October 1st and October 27th, inclusive, 1884.

By
Edgar A. Mearns,
1st Lieut. & Asst Surgeon, U. S. A.,
Surgeon and Naturalist of the Expedition.

I joined the General's party as they passed through Fort Verde on October 1st. The following extract from my official report as Medical Officer, will give a general idea of the Expedition and region traversed:

"October 1st, 1884.

"The command, consisting of Brigadier General George A. Crook, Comdg Dept of Arizona, Capt. J. H. Bourke 3rd Cavalry, A. A. Insp. General, Capt. G. S. Roberts 17th Inf., A. A. J. C., Capt. H. Russell 3rd Cavalry, with Asst Surgeon E. A. Mearns as Medical Officer, 3rd Private R. Fare Troop, 3rd Cavalry, Hospital Steward 3rd Class 2nd 30 enlisted men of Troop "K" 3rd Cavalry, with a full pack train, left Fort Verde, and marched to Clear Creek, seven miles. Oct. 2nd, marched to Mud Tanks, sixteen miles. October 3rd, marched to Barker's Butte, sixteen miles. October 4th, marched to General's Springs, twelve miles. October 5th, marched to Mosquito Creek, twenty-two miles. October 6th, marched to Red Tanks, twenty-three miles, and were joined by the Fort Apache pack train loaded with grain for the command. October 7th, marched to Left Fort of Canon Creek, fifteen miles. October 8th, marched to the Cibola, twenty miles. October 9th, marched to Carrizo Creek, eighteen miles. October 10th, marched to Forest Dale, twenty miles. October 11th, marched to Apache Cross Roads, eighteen miles. October 12th, marched to Fort Apache, fourteen miles, and left the Apache pack train. October 14th, were joined by the San Carlos pack train, and marched to Black River, twenty-two miles. October 15th, marched to Ash Creek [Camp Hentig], twenty-seven miles. October 16th, marched to the Gila River, twenty-three miles. October 17th, marched to the San Carlos Indian Agency, twelve miles, and left the San Carlos pack train. October 19th, marched to Coyote Springs, sixteen miles. October 20th, marched to the Wheatfield, twenty-eight miles. October 21st, marched to Salt River, sixteen miles. October 22nd, marched to Tonto Creek, twenty-two miles. October 23rd, marched to Upper Wild Ry, twenty-six miles. October 24th, marched to the Natural Bridge, twenty-five miles. October 25th, marched to Fossil Creek, twenty miles. October 26th, marched to Fort Verde, twenty miles [where I returned to my proper station and duties as Post Surgeon]. Total distance travelled [to Fort Verde] four hundred and fifty-seven (457) miles."

On October 27th, the General's party returned to Whipple Barracks, forty-two miles, and I travelled back twenty miles on yesterday's trail after a Mule Deer which General Crook shot and the packers failed to bring in, and returned to Verde the same night, having ridden forty miles.

October 1st - After dining at Capt. Russell's we marched to Clear Creek. The ladies of Fort Verde accompanied the command in the post ambulance. Mrs. Russell and Mrs. Mearns and daughter spent the night in camp on Clear Creek, and returned to Verde after breakfast in Genl. Crook's ambulance.

The only Birds seen were:

1. *Hirundo erythrogastra*.
2. *Corvus corax carinivorus*.
3. *Sayornis sayi*.
4. *Timunculus parvulus*.
5. *Cathartes aura*.

Barn Swallow.
American Raven.
Say's Pewee.
Sparrow Hawk.
Turkey Buzzard.

The only Mammals seen were:

1. *Lepus sylvaticus* ^{arizonae} ~~monticola~~.
2. *Lepus arizonae* ~~monticola~~ ^{texianus}.
3. *Tamias harrisi*.

Sage Hare.
Northern Jackass Hare.
Harris's Chipmunk.

October 2nd - Marched to Mud Tanks. The trail ran along Clear Creek for a mile or two. The stream is bordered with sycamores (*Platanus*), cottonwoods, and a "black ash" which resembles in appearance the birch-tree, and "box Elders" very like the maple. Large masses of grapevine grow over the trees and are loaded with grapes. There are some Aztec ruins along the part of Clear Creek which we passed by. Fishes are abundant. Also a turtle and a frog.

After leaving Clear Creek the day's march lay over a rough *mala pai* (= bad country) road over a range of mountains to a level plateau. There were some scattered cedars and occasional patches of scruboaks, and greasewood. On the top of the mesa we passed through two groves of cedars, in which were found some Woodhouse's Jays and other birds.

At Mud Tanks, where we encamped, there is a fine grove of large pine-trees, the first seen on the trip. A few piñons were seen on the hills and oaks.

The Birds seen were:

1. *Lophophanes inornatus*.
2. *Sitta carolinensis aculeata*.
3. *Salpinctes obsoletus*.
4. *Lanius ludovicianus excubitorides*.
5. *Carpodacus frontalis*.
6. *Poocetes gramineus confinis*.
7. *Eremophila alpestris*.
8. *Zonotrichia leucophrys*.
9. *Pipilo aberti*.

Plain Titmouse.
Slender-billed Nuthatch.
Rock Wren.
White-rumped Shrike.
House Finch.
Western Grass Finch.
Shore Lark.
White-crowned Sparrow.
Abert's Towhee.

October 2nd - Continued.

10. Pipilo maculatus megalonyx. Spurred Towhee.
 11. Spizella socialis arizonae. Western Chipping Sparrow.
 Common all along the route.
 12. Peucaea

A number were seen among the scrub oaks on the hillsides. Note, a low "twee." They usually retreat to the interior of a bush at your approach, and do not take to flight until you are close upon them, where they usually alight on the top of a scrub oak, and drop down into the densest foliage when approached.

13. Apelocoma woodhousei. Woodhouse's Jay.
 A few among the cedars, and at camp, in the oaks.
 14. Symnecitta cyanocephala. Maximilian's Nuthatch;
 Piñon Jay. Several flocks were seen along the route.
 15. Corvus corax carinatus. American Raven. A few scattered along the entire day's-march.
 16. Sayornis sayi. Say's Pewee. A few on Clear Creek.
 17. Picus scalaris. Texas Sapsucker. In mesquites on Clear Creek.
 18. Picus villosus harrisi. Harris's Woodpecker. One seen in the pines where we made our second camp.
 19. Colaptes auratus mexicanus. Red-shafted Flicker.
 At Camp 2 among the pines.
 20. Meiancistrus formicivorus. Californian Woodpecker.
 Not seen until we reached Camp 2, where we first found the pines. There it was abundant.
 21. Axyndimus torquatus. Lewis's Woodpecker. General Crook saw several on the way and at Camp 2. I have never met with this splendid bird.
 22. Pandion haliaetus carolinensis. American Osprey;
 Fish Hawk. One on Clear Creek.
 23. Buteo borealis calurus. Western Red-tail Hawk.
 Several pairs.
 24. Accipiter cooperi. Cooper's Hawk. Several seen.
 25. Accipiter fuscus. Sharp-shinned Hawk. Several seen.
 26. Finnunculus sparverius. Sparrow Hawk. Several seen.
 27. Lophortyx gambeli. - I only saw one flock, about half-way to Camp 2. Shot mine.
 28. Cyrtonyx massena. Massena Quail. A flock of Massenas was flushed by the cavalry escort, from the road, near the head of Clear Creek. I accidentally flushed one of the scattered birds when I came up behind the pack train, and afterwards two more, each of

October 3rd.

which I shot as it flew from my feet. I have never seen this beautiful species alive before; but, as I saw none of them upon the ground, I got no idea of their appearance or habits. They lay very close, and arose with a rustling sound and a singular vocal expression. They are elegant game birds.

30. Ardea herodias. Great Blue Heron. One seen on Clear Creek.

The following-named Mammals were seen to-day.

1. Antilocapra americana. Pronghorn Antelope; Reabree.
 Mr. Murray saw a small band on the mesa above Clear Creek.
 2. Cervus macrotis, Say. Mule Deer; "Black-tailed Deer".
 General Crook shot one of three in a valley near Mud Tanks, a young buck, whose horns were in the velvet. It was an excellent specimen, as the horns were hardened and the velvet could have been preserved nicely; but it was, unfortunately injured before I saw it.
 3. Lepus callotis texianus. - A few Northern Jackass Hares were seen. One at Mud Tanks.
 4. Tamias asiaticus dorsalis. Sila Chipmunk. A few were seen in rocky places en route.
 5. Thomomys talpoides umbrinus. Southern Pocket Gopher.
 Fresh signs at Mud Tanks (= Camp 2) and other places.

Specimens collected: -

- No. 3361. Cyrtonyx massena. ♀ juv. Young of the year.
 " 3362. Cyrtonyx massena. ♂ juv. do
 " 3363. Cyrtonyx massena. ♂ juv. do

October 3rd. Marched to Baker's Butte, 16 miles.

Before leaving Mud Tanks, I carefully explored the pine woods in the vicinity, and shot specimens as follows:

- 1 Lewis's Woodpecker, 1 Woodhouse's Jay,
 3 Californian Woodpecker, 1 Common Crow,
 1 Sharp-shinned Hawk, 1 River-colored Tanager,
 and 1 Setophaga ruticilla.

Other birds seen at Camp 2, were: -

1. Parus montanus. Rocky Mountain Chickadee. A large flock among the pines; the first I ever saw.
 2. Regulus calendula. A few Ruby-crowned Kinglets, the first seen since last spring were fluttering about the low oak bushes.
 3. Sitta pygmaea. Pigmy Nuthatch. A few in the pines.
 4. Sitta carolinensis aculeata. Slender-billed Nuthatch. Common.

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5. Lophophanes inornatus. Plain Titmouse. One.
6. Carpodacus frontalis. House Finch.
7. Spizella socialis arizonae. Western Chipping Sparrow.
8. Gymnocitta cyanocephala. Maximilian's Jay. Large

flocks were flying about before daylight, uttering their loud, plaintive cry. They were very abundant in the vicinity of the Tanks, doubtless coming there in search of water. They seldom alighted, but flew in long, straggling flocks, crying loudly. Occasionally a few would drop out of the ranks as they skimmed over the pine tops; but they were too shy to be easily shot.

9. Corvus fuscus. Common Crow. Large flocks were seen just at daylight, and some smaller flocks remained about camp as long as I stayed.

10. Corvus corax. American Raven. The American Ravens were common, and came about camp after the party left to pick up the carcasses. They were quite bold and appeared not to fear the sound of the gun.

11. Scolecophagus cyanocephalus. Brewer's Blackbird. A flock at camp, ravaged by Sharp-shinned Hawks.

12. Picus villosus harrisi. Harris's Woodpecker was common enough among the pines.

13. Colaptes auratus mexicanus. A number seen.

14. Buteo borealis calurus. Western Red-tail. Common.

Very few oaks were seen after leaving Camp 2; and the last Woodhouse's Jay was seen at Camp 2; the last Picicaea before we got quite to Camp 2 at Mud Tanks.

After leaving Mud Tanks, the following-named species of Birds were seen en route to camp at Baker's Butte:

1. Sialia mexicana. Californian Bluebird. Common.

2. Lophophanes inornatus. Plain Titmouse.

3. Sitta pygmaea. A few among the Pines.

4. Sitta carolinensis aculeata. Slender-billed Nuthatch.

This species was common; more so than the Pinyon Nuthatch.

5. Astragalinus psaltria psaltria. Green-backed Goldfinch.

6. Poocetes gramineus confinis. Western Grass Finch.

7. Zonotrichia leucophrys. White-crowned Sparrow.

8. Junco dorsalis. Red-backed Snowbird. This strikingly colored Snowbird was here met with (near Baker's

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Butte) for the first time. It is the handsomest species of the genus Junco!

9. Corvus corax. American Raven. Scarcely.

10. Cyanocitta stelleri macrolopha. Long-crested Jay.

11. Gymnocitta cyanocephala. Maximilian's Jay.

12. Picus villosus harrisi. Harris's Woodpecker. Common.

13. Melanerpes formicivorus. Californian Woodpecker.

14. Asyndesmus torquatus. Lewis's Woodpecker. In

the open pine woods these Woodpeckers were sporting in a lively manner, chasing each other from one dry pine-top to another and dodging each other about the trunk of a tree. They occasionally alighted upon the ground after the manner of Colaptes. The appearance of these birds when flying is quite remarkable as well as unique. Its great expanse and peculiar handling of wings together with the abbreviated tail contribute to the peculiarity of its appearance during flight. It perhaps resembles, if any other species, the Log Cock (Hylocichla ustulata).

They are quite as noisy and rollicksome as the Flicker, and even more loquacious. When perching on a branch they sit erect, and look as much like Flycatcher as Woodpeckers.

15. Meleagris gallopavo. Mexican Turkey. Sergeant Martin shot a hen from a large flock after we reached camp near Baker's Butte. These were the first Turkeys seen on the trip.

16. Columba fasciata. Band-tailed Pigeon. I flushed a pair from the ground beneath some oak-trees, where they were eating acorns. Capt. Roberts also saw one pair. They were wild and alighted in the tallest pines, and could not be secured. I never saw this large and beautiful Pigeon alive before. They make a loud flapping sound when they take to flight.

17. Falco columbarius. One was shot from my horse in the thickest pine woods. Hitherto I have found the Pigeon Hawk extremely scarce in Arizona.

18. Accipiter fuscus. Sharp-shinned Hawk. Several were seen.

19. Buteo borealis calurus. Western Red-tail. Common.

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8 The objection to rapid marching in field collecting and observation is that nearly everything that is small, inconspicuous or shy is almost certain to be overlooked. My horse pleases me, however. I tried shooting from his back to-day and find that he stands very well, and that I am even able to kill birds on the wing from his back. He is a lean cadaverous beast, but with care I hope to bring him through. His good qualities are, an easy gait and standing fire well. He is the mate to my Steward's horse and his attachment for that animal is so great that I can slip off any where and he will stay with the Steward until I come back.

The following Mammals were the only ones seen, viz:
1. Scurius aberti. Abert's Pine Squirrel. To Captain Gerald Russell belongs the honor of first adding this species to the list of Mammals seen on the trip. The Captain saw the first Abert's Squirrel among the pines soon after we got well into the pine forest. I have not seen the species alive yet; but we expect to find them to-morrow.

2. Lepus callosus texianus. Northern Jackass Hare. Before we reached the edge of the pine forest, after leaving the isolated grove of magnificent pine-trees at Mud Tanks, we passed through a belt of grassy country with many "cedars" and junipers upon the ridges and higher ground, and here we found the only "Jack" Rabbits seen on to-day's march.

3. Cyniacus macrotis. Mule Deer; "Black-tailed Deer". Several small bands or single Deer were seen by our party along the line of to-day's march.

4. Thomomys talpoides umbrinus. Southern Pocket Gopher. This singular, subterranean animal appears to specially delight in the loose rich soil beneath the pine needles; and the abundance of their mounds and burrows attests their abundance everywhere in the pine woods. We have not yet been able to procure any specimens, being unprovided with proper traps.

5. Ursus americanus. Brown Bear. General Crook shot a full-grown male, the first one I have ever seen. He shot it a few miles from our last camp at Mud Tanks. His first shot broke its fore-leg high up. The Bear was moving at the time, and the shot aimed at just behind the shoulder. A second shot through his head finished him. The General built a fire to mark the place and the packers went after the

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Bear with a pack-mule; but, after they had blindfolded the mule and tied the Bear on the apadejo, the mule took fright, got away from them and took to the forest and was lost. By tracking the mule the packers found where the Bear had been gotten off. A second mule was then sent back, but was likewise unmanageable and the men then skinned the bear and brought only the skin and hind quarters in to camp, where they did not arrive until late at night. I was very sorry to lose this opportunity of procuring a fine adult skull of this mammoth gut-dressed - the largest game found in this region with the exception of the Elk, which is still found in considerable numbers in the White Mountains of Arizona, and in less numbers in the San Francisco range.

Specimens collected: -

No. 3364. Asyndesmus torquatus. Lewis's Woodpecker. ♂ ad. Presented to Captain C. S. Roberts.

No. 3365. Falco columbarius. Pigeon Hawk. ♀ juv. Shot ^{near} Camp 3, near Baker's Butte. 322; 685; 220; 148; cere and culmen, 18; cere, 4.5; culmen, 14.5; tarsus, 41; middle toe and claw, 46; claw alone, 12; gape, 20. Cere, bare skin around eye and base of bill, greenish-yellow. Bill, greenish-yellow, blue at base, plumbeous-black at tip. Tarsi and feet, greenish-yellow. Claws, blue-black. Irides, dark hazel.

No. 3366. Accipiter fuscus. Sharp-shinned Hawk. ♀ juv. Shot at Camp 2, in the act of killing Brewer's Blackbird. 340; 640; 210; 178; cere and culmen, 18.5; cere, 8.5; culmen, 12; gape, 18.5; tarsus, 55; middle toe and claw, 43; claw, 11.5. Cere, sap-green. Bill, with maxilla blue laterally at base and mandible blue at base; residue plumbeous-black. Tarsi, greenish-yellow; feet, lemon-yellow. Claws, blackish. Irides, yellow.

No. 3367. Pyrranga hepatica. Liver-colored Tanager. ♂ ad. Irides, hazel. Bill, with maxilla and tip of mandible, blackish; residue of mandible, bluish. Tarsi and feet, dusky-plumbeous; claws, blackish. Shot at Mud Tanks. 209; 330; 105; 91; cul, 18; gape, 21; tarsus, 25; middle toe and claw, 23; claw, 7.

No. 3368. Corvus rugivorus ♂ (ad.) Moulting. Irides, dark hazel. Bill, tarsi, feet and claws, black. 485; 970; 327; 213; culmen, 42; gape, 51; tarsus, 56;

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middle toe and claw, 52; claw, 14. Shot at Mud Tanks.
 No. 3369. *Asyndesmus torquatus* ad. Lewis's Woodpecker.
 Shot at Camp 2 (=Mud Tanks). The first one I ever killed!
 Bill, plumbeous-black, grayish at base of mandible.
 Tarsi and feet, plumbeous-gray; claws, plumbeous-
 black, slightly brownish at base. 280; 535; 172; 110;
 culmen, 30.5; gape, 36; tarsus, 25; middle toe and
 claw, 30; claw alone, 11.

No. 3370. *Asyndesmus torquatus*. Lewis's Woodpecker.
 282; 520; 167; 120; culmen, 27; gape, 33; tarsus, 24;
 mte, 30; claw, 11. Colors as above.

October 4th, 1884. Left camp near Baker's Butte at daylight,
 and marched to General Springs, 12 miles.
 We left our camp at a spring down in a deep ravine, and
 for some miles found the road to be a gradual ascent,
 with occasional hills to climb. We had scarcely got
 well on the road when Captain Russell, who rode next
 behind the General, came upon a large flock of Turkeys
 in the road, and shot a fine one with his rifle. He
 rode ahead while he was hunting the Turkeys, but
 my Steward and Private Helbo, my stricker, and turned
 off to the left into the wood. We tied our horses and
 started out for a Turkey hunt. The place was very
 rolling, with many deep ravines that intersected each
 other; and I soon became aware that I was lost.
 The deep, moist valleys were grown up with tall braves
 and ferns and the vegetation was very interesting and
 new to me. In a deep, narrow ravine grown up to
 spruce, a tree which I saw here for the first time, were
 some handsome low maples (*Acer*) ^{grandidentata} whose leaves were
 as richly tinted with red and yellow as the maples in
 New York state in autumn. The principal timber is
 the splendid yellow pine, growing a hundred or more
 feet in height, with straight trunks. I saw the first Pine
 Squirrel (*Sciurus aberti*) among them. It was running
 along the grassy turf when I saw it first, and then
 ran up a tall pine where I shot my first specimen.
 Birds were common in these valleys, but the number
 of different species rather small. Beneath the spruce-
 trees, I discovered a species of Rattlesnake Plantain
 (*Goodyearia* —?) which was the first *Oreoz*
 seen on the trip. ~ Numbers of Chipmunks were chattering
 from logs and stones and some in oak trees. They were

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of a variety new to me, and one that I did not expect to
 meet with, viz: *Sciurus quadrivittatus*, the Rocky Mountain
 Chipmunk. On the rocky nuclei I found beautiful ferns
 and many other interesting plants such as grow in temperate
 regions. The day was cloudy, and, not being able to see the
 sun, I had no idea in which direction to strike out for the
 trail; so I amused myself with looking for specimens,
 and at length came upon a herd of Deer, which was
 a stirring sight; but I did not get quite close enough to
 kill one with my shotgun. Then the sun shone out, and
 I soon struck the trail; but the day was far spent, and
 I was a long way from my horse and had to walk
 back, and then return over the same trail, with nearly
 the whole day's march still before me. Flocks of Lewis's
 Woodpecker, Wood Pigeons and hundreds of Long-crowned
 Jays were passed as I trotted swiftly over a trail where
 I would have delighted to linger for days. At length I
 came to an open space to the right of the trail, and,
 riding out into it, beheld one of the grandest, most
 exquisite scenes that could be imagined. I found myself
 upon the very verge of the high rim-rock of Gault Basin,
 and looking down from the top of the gigantic wall of
 rock, a hundred times higher than the Great Wall of China,
 which shuts in this beautiful basin. As far as the eye could
 reach the beautiful, pine forest, open and park-like, with
 wide patches of greenward stretched out in gentle
 undulation, the inequalities in elevation scarcely apparent
 when looking down from above. It was a rare and
 beautiful world spread before me, marking
 a panorama so exquisite in its loveliness, so naturally
 beautiful, and so delightfully solitary and lonely, that
 I stood entranced until aroused by the sight of a
 Peregrine Falcon (*Falco peregrinus naevius*) which settled
 upon a dead pine-top. I got as close as the nature of the
 locality allowed, and fired a shot, but, although a few
 feathers were knocked out, the Falcon flew swiftly
 away and alighted upon another pine. So was glad not
 to have killed it, for I saw immediately after shooting that
 the bird would have fallen down perhaps a thousand feet
 before striking the side-wall and would of course have been lost.
 From this time our trail lay along the rim rock for
 several days, skirting the top of the circular basin. At
 times the trail ran a considerable distance from the wall
 and again would come abruptly upon some jutting point,

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which commands a fine view of Gault Basin.

To the left of the trail a series of valleys descended and in them the Spruce, fir and several species of deciduous trees, underbrush and herbage grow, in striking contrast to the sun pine woods through which we have been travelling. In these pretty ravines, brightly tinted with the changing foliage, I discovered a second, and third new squirrel on to-day's march. It is Fremont's Chickaree (Sciurus hudsonius fremonti).

Near General Springs, I passed a man who had just seen a large flock of turkeys, but I hunted for them in vain. When I reached camp I found all the officers together with my Steward and Striker engaged in cleaning the fat from the General's bear-skin.

The only Mammals seen to-day were:

1. Canis latrans, Say, Prairie Wolf; Coyote.
2. Sciurus hudsonius fremonti, Fremont's Chickaree. I left my horse at the head of a densely wooded ravine, such as I have already described before, and after walking down a little way, heard a loud crackling sound as of some heavy animal like a Bear walking over dry branches. I soon discovered, however, that the sound was caused by one of these squirrels industriously engaged in throwing down large heavy resinous cones from the Spruce-trees near-by, and I speedily brought the little fellow to bag, and, on going forward to pick up my game found an immense heap of cones upon the ground beneath the tree in which it was shot. I secured a second specimen in another similar ravine; and Captain Roberts killed an other which was too badly mutilated to be of any use, having been accidentally shot with buckshot.
3. Sciurus aberti. I saw but one, the young male preserved; but General Crook shot two fine ones through the head with his rifle.
4. Sciurus striatus quadrivittatus. - Common in the hills about Baker's Butte. They chipper like the eastern chipmunk a good deal, and ascend good-sized oaks for food as I have seen the Eastern Chipmunk do in autumn. Their burrows are in the ground beneath stones or at the root of a tree. The only specimen shot was killed up an oak-tree.
5. Cervus macrotis, Say. Mule Deer; Black-tailed Deer. I saw a band of Deer in a ravine near Baker's Butte, and a number were seen by our party. A beautiful antlered buck bounded from the ravine ahead of me and stood like a statue at the top until the rest of the band were out of the ravine when they all ran off together.
6. Thomomys talpoides umbrinus. Southern (or West) Gopher.

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Birds. - The following species were observed, viz:

1. Sialia mexicana. Californian Bluebird. Abundant, often alighting in large flocks in the tops of the tallest pines as well as upon the ground lowest branches.
2. Regulus calendula. - Abundant. Ruby-crowned Kinglet.
3. Parus montanus. - Abundant. The Rocky Mountain Chickadee is the most common species, unless it be the ubiquitous Pinyon Nuthatch. Its note resembles that of Parus atricapillus in the East, but it utters a whizzing sound like that of the Brown Creeper (Certhia familiaris). Indeed I noted having heard the Creeper in my note-book, before I became aware that this Chickadee has a note so like it. They are as lively and unsuspicious as the Eastern Chickadee.
4. Sitta carolinensis aculeata. Slender-billed Nuthatch. Very common, but less so than the Pinyon Nuthatch.
5. Sitta pygmaea. - These little pygmies are so excessively social as well as voluble, and their notes are such an indescribable medley that I shall not attempt to describe them, except to say that they are totally different from the notes of the other Arizonian species, viz: S. aculeata et canadensis.
6. Salpinctes obsoletus. Rock Wren. Only one at our camp at General Springs where there are some rocks such as this species delights to live upon.
7. Dendroica auduboni. Audubon's Warbler. Quite plentiful. The first seen since last spring were observed shortly after leaving camp at Baker's Butte. Their habits closely resemble those of Dendroica coronata. It is an expert flycatcher, and is fond of fruit and berries as well.
8. Junco dorsalis. Red-backed Snowbird. Very common. Its call note is like the other Juncos.
9. Lymnecitta cyanocephala. Maximilian's Jay. A number of flocks were seen and heard all the way between camps.
10. Cyanocitta stelleri macrolopha. Long-crested Jay. Very abundant and vociferous.
11. Picus villosus harrisi. Harris's Woodpecker. Very abundant. Its notes like those of P. villosus.
12. Melanerpes formicivorus. Californian Woodpecker. Abundant.
13. Asyndesmus torquatus. Lewis's Woodpecker. A number were seen, mostly flying.
14. Colaptes auratus mexicanus. Red-shafted Flicker. Rather common near the edge of the river-rock, but less so where the road leaves the Basin.

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15. *Buteo virginianus*. Horned Owl. One heard at Baker's Butte at daylight.
16. *Falco columbarius*. Pigeon Hawk.
17. *Falco peregrinus naevius*. Peregrine Falcon. One was shot at, sitting upon the rim-rock of Lonto Basin.
18. *Accipiter sparverius*. Sparrow Hawk.
19. *Accipiter fuscus*. Sharp-shinned Hawk.
20. *Buteo swainsoni*. Swainson's Hawk. One found dead at General Springs.
21. *Buteo borealis calurus*. Western Red-tail Hawk.
22. *Meleagris gallopavo*, Lin. Mexican Turkey. Captain Gerald Russell shot one from a flock of twenty or more. Sergeant Martin shot one with his carbine and wounded another. He said that there were 100 in the flock. A third flock was seen near General Springs, which contained some fine old gobblers.
23. *Columba fasciata*. Band-tailed Pigeon. I saw one bird flying. Other members of our party flushed them from the ground, where they were eating acorns beneath the oaks. These acorns are as large, sweet as chestnuts, and the Pigeons feed chiefly on them.

Specimens of Birds Collected:-

- No. 3371. *Picus villosus harrisi*. Harris's Woodpecker. ♂ ad. 240; 424; 130; 94; culmen, 32.5; gape, 33.5; tarsus, 24; middle toe and claw, 24; claw, 10.5.
- No. 3372. *Junco ^{cinereus} dorsalis*. Red-backed Snowbird. ♂ ad. 175; 270; 87; 82; culmen, 13; gape, 14; tarsus, 22; middle toe and claw, 20; claw, 6. Irides, hazel.

Specimens of Mammals collected:-

- No. 133. *Sciurus aberti*, Woodhouse. Abert's Pine Squirrel. ♂ juv.
- No. 134. *Tamias striatus quadrivittatus*. Rocky Mountain Chipmunk. ♂ ad. Baker's Butte, Mogollon Mountains.
- No. 135. *Sciurus hudsonius fremonti*. Fremont's Chickaree. ♂ ad. Between Baker's Butte and General Springs, A. T.
- Dimensions. - Total length, 372. Head and body, 197. Tip of nose to eye, 24; ear, 44; occiput, 53; end of outstretched hind leg, 312. Tail to end of vertebrae, 130; hairs, 175. Length of manus, 34; longest claw 7. Length of pes, 45; longest claw, 7. Fore leg, 38. Hind leg, 50. Height of ear from crown, 20; meatus, 24; breadth, 22. Between eyes, 26.5. Chest girth, 130. Pelage gummy from the cones of Abies.
- No. 136. *Sciurus hudsonius fremonti*. ♀ ad. Locality the same as above. Total length, 385. Head and body, 215. Tip of nose to eye, 23; ear, 46; occiput, 55; end of outstretched hind leg, 325.

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Tail, to end of vertebrae, 135; hairs, 180. Length of manus, 35; longest claw, 7. Length of pes, 46; longest claw, 7. Fore leg, 39. Hind leg, 52. Height of ear from crown, 22; from meatus, 26; greatest breadth, 23. Between eyes, 28. Chest girth, 133. Pelage stuck together with spruce gum, from the cones. No. 133, being young was not measured.

No. 134 presented the following

Dimensions. - Total length, 260. Head and body, 140. Tip of nose to eye, 17; ear, 30; occiput, 38; end of outstretched hind leg, 210. Tail to end of vertebrae, 96; hairs, 120. Length of manus, 18; longest claw, 5. Length of pes, 4.5. Fore leg, 24; Hind leg, 37. Height of ear from crown, 14; meatus, 17; greatest width 14. Ears, pointed.

October 5th, 1884. - We left camp at daylight and marched to a ravine in the Mogollon Mountains, 23 miles. I think the place is called "the Lake Tanks".

The trail lay through pine woods, like a park, with only grass and flowers in endless profusion, variety and beauty growing beneath. I saw the shonkshood (*Aconitum*) and many handsome species of the family Leguminosae. The shonkshood only grows in damp ravines. In similar places were beautiful blue cove gentians, a smaller species than the Eastern *Gentiana andrewsii*. Near General Springs I saw some gigantic specimens of a species of the genus *Corallophila*, more than two feet high, and quite thick. The march was along the Lonto Basin rim-rock for the greater part of the way. The views obtained from time to time as we came out upon the edge, were as beautiful as ever, although the height was less, and the wall not perpendicular but sloping towards the base, and grown with shrubs whose leaves had assumed the richest autumnal hues, forming a red and yellow margin to the green center of pines and grass, among which a few oaks and aspens were scattered in occasional patches. As before, a series of spruce valleys thickly undergrown with brushwood trended to the left of our trail.

The following-named were the only Mammals seen:-

- Canis latrans*, Say. Prairie Wolf; Coyote. Howling at night.
- Sciurus aberti*, Abert's Pine Squirrel. General Crook killed three, one of which was melanotic. When I came into camp, the Steward handed me the beautiful specimen with black belly which the General had given him for me on the road. The back of its head

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bore the mark characteristic of the General's rifle bullets. All of his specimens, including the Pine Squirrels, some Band-tailed Pigeons and a Turkey were shot in the same manner, and were piled together beside a large pine-tree.

I also shot a fine male Abert's Squirrel. They are shy and expert at hiding. This one lay close to a horizontal pine bough over the trail, perfectly motionless. My eye caught it by accident, and, although close by, I scarcely felt certain whether it was a Squirrel or not. My shot, however, settled the question very satisfactorily. Another very large Squirrel ran up an isolated pine of medium size, whence it could not escape without notice. I was certain that the tree was sound and contained no cavities, yet I rode around the tree again and again, examined it close by and far away, and finally fired several shots through the densest part of the tree in suspected places, without discovering the Squirrel, whose long, white, bushy tail, it would seem, should discover it at a glance.

3. Sciurus hudsonius fremonti. Fremont's Chickadee. Several were seen, always in the ravines where the fir and spruce grow. All were gathering for food the large cones of the Spruce (Abies). These Squirrels have not been seen by us in other localities than these valleys, which are grown with the conifers alluded to, besides dwarf shrubs (Heur) as bright red in autumn as the Eastern species, and many other shrubs and herbs. There are Pyrola, Asplen, Golden-rods with heads as large as the Eastern Solidago squarrosa, Smilacina, Gordycaria, and a plant like Smilacina, bearing fruit as large as cranberries of a vivid scarlet color. A tall Elder with large bunches of pleasant-tasting fruit, and a shrub with fruitage like the common whortleberry, but red tasting, were noticed occasionally. There were several species of Silene (Living). These woods bear a close resemblance to those of New England and the Middle States, and are the resort of numbers of small birds besides the Squirrels which appear to inhabit them to the exclusion of the more open pine-woods.

4. Thomomys talpoides umbrinus. Southern Pocket Gopher. Signs very abundant everywhere.

5. Cervus macrotis (Say). Mule Deer. Steward saw three, and General Crook saw two. From the abundance of deer-signs they must be abundant in the region traversed to-day.

Birds seen:-

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1. Hirundo unalashkae audubonii. Rocky Mountain Hermit. The first bird shot after leaving General Springs was this, the only one I have ever seen shot in an oak-tree in the pine woods.

2. Sialia mexicana. Californian Bluebird. Common, sitting in the thick pine woods.

3. Agelaius calendula. Ruby-crowned Kinglet. Common, especially in the brushy ravines.

4. Larus montanus. Rocky Mountain Chickadee. Abundant.

5. Sitta carolinensis aculeata. Slender-billed Nuthatch. "

6. Sitta pygmaea. Pigmy Nuthatch. Very abundant.

7. Dendroica auduboni. Audubon's Warbler. Abundant.

8. Loxia curvirostra mexicana. Mexican Crossbill. Several large flocks flying with much chattering amongst the fir-trees near the Lake Tanks, and at the Lake Tanks. These were the first I have seen. The colors of the males appeared to be bright red all over, when seen flying overhead. I was unable to obtain a shot at them.

9. Junco dorsalis. Red-backed Snowbird. Very plentiful.

10. Geothlypis cyanocephala. Brewer's Blackbird. As we were leaving General Springs a flock alighted there; the only ones seen.

11. Picicorvus columbianus. Clarke's Niteracker. When stopping near the Lake Tanks to graze our horses, I followed a particularly attractive, woody ravine for a long distance, and was rewarded by finding many interesting things and nothing more so than Clarke's Crow, a species that I never saw living till now. Its notes were first heard - a loud "hash, hash, hash!", and as a few of them flew overhead I shot the foremost one, and the rest turned about and retreated to some dead limbs on the steep side of the ravine, still uttering their peculiarly harsh "hash, hash, hash!", until I fired at one and wounded it. It escaped, however in the dense underbrush in the ravine, and I was unable to obtain another shot, although the birds were heard crying about me, in the tall pine-trees for some time. One was seen vigorously pecking at and rubbing its bill against a dead branch. Steward and I saw a flock where our horses were grazing while I was hunting in the ravine. General Crook heard the call of this species yesterday, before we reached General Springs, and mentioned the fact to me; but as I was not positive that the species occurred

- this region, I neglected to make a note of it in my Journal.
12. Gymnocitta cyanocephala. Maximilian's Nuthacker; Pinon Jay. Several flocks seen between camps 4 and 5.
 13. Gymnocitta stelleri maculophya. Long-crested Jay. Very common indeed.
 14. Empidonax. One shot in a bushy ravine.
 15. Picus villosus harrisi. Harris's Woodpecker. Abundant.
 16. Sphyrapicus varius nuchalis. Red-naped Woodpecker. One shot on a spruce trunk, not far from the ground where it was hiding. The only one seen.
 17. Sphyrapicus thyroideus. Black-breasted Woodpecker. The only one seen was a fine male, the first that I ever saw. It was sticking close to the bole of a lofty pine-tree, where I shot it from my saddle. It clung to the bark for a long time, as did the first.
 18. Melanerpes formicivorus. Leaf-formian Woodpecker. A few seen.
 19. Asyndesmus torquatus. Lewis's Woodpecker. A few seen.
 20. Colaptes auratus mexicanus. Red-shafted Flicker. One or two seen.
 21. Buteo swainsoni. Swainson's Hawk. A few.
 22. Buteo borealis calurus. Western Red-tail. A number were seen; and Capt. Roberts shot one, in the dark phase.
 23. Falco columbarius. Pigeon Hawk. One or two.
 24. Falco peregrinus naevius. American Peregrine Falcon; Duck Hawk. One adult was shot, but fell down the cliff into Sonto Basin, where it could not be recovered. If killed perfectly dead I would have been able to get it, as it was sitting on a dry tree above a wide ledge, but flutters over the edge and was lost.
 25. Columba fasciata. Band-tailed Pigeon. I shot my first specimen upon the topmost bough of a huge pine. It was much injured by falling so great a distance to the earth. Others were shot (decapitated) by General Crook; but they were scarce.
 26. Meleagris gallopavo. Mexican Turkey. Captain Russel saw a large flock. General Crook shot one, and saw a brood of young. The one shot was young and about the size of a hen. He could have shot more, but thought them too small to kill. The one shot was hit in the back of the head, just as the General's Squirrels are always shot.

- Specimens of Mammals shot & preserved:-
- No. 137. Sciurus hudsonius fremonti. Fremont's Chickaree. ♂ ad. Between General Springs and the Lake Tanks, Mogollon Mountains, A. T. Total length, 378; head and body, 210. From tip of nose to eye, 22; ear, 45; occiput, 55. Tail, to end of vertebrae, 127; hairs, 168. Length of manus, 35; pes, 51. Fore leg to carpo-metacarpal joint, 39. Hind leg to tarso-metatarsal joint, 55. Height of ear from crown, 21; meatus, 26. Between eyes, 29. Chest girth, 128. From nose to end of outstretched hind foot 330. Longest fore claw, 7; longest hind claw, 7. Ears, width, 22. Hairs stuck together, with spruce gum. Ears, rounded.
 - No. 138. Sciurus aberti. Abert's Pine Squirrel. ♂ ad. A melano. Shot by General George Crook in the Mogollon Mountains, between General Springs and the Lake Tanks, A. T. Total length, 593. Head and body, 295. Tip of nose to end of outstretched hind-foot, 433; to eye, 31; ear, 56; occiput, 71. Tail to end of vertebrae, 208. Hairs, 303. Length of manus, 47; of pes, 64. Fore-leg, to carpo-metacarpal joint, 56. Hind-leg to tarso-metatarsal joint, 78. Height of ear from crown, 33; from meatus 44; width, 27. Distance between eyes 40. Chest girth, 180. Longest fore claw, 10. Longest hind claw, 11. Ear tufts above tip of ear, 15. This specimen is the only melanotic one seen on the trip. I showed the Indian guides this one and the next. They said they were the same species, although one had a black belly, and the other was pure white. Then I asked whether both were common, to which the Indian (Peaches) replied, "yes, both plentiful, but this one [pointing to the white-bellied Squirrel] most plentiful."
 - No. 139. Sciurus aberti. Abert's Pine Squirrel. ♂ ad. Shot by me, in the Mogollon Mountains, between General Springs and the Lake Tanks, A. T. Total length, 550. Head and body, 270. From tip of nose to end of outstretched hind-leg, 425; to eye, 29; ear, 52; occiput, 69. Tail to end of vertebrae, 205. Hairs, 280. Length of manus, 50; of pes, 61. Fore-leg to foot, 56; hind leg, 80. Height of ear from crown, 35; meatus, 44; width, 28; ear-tuft, 15 above margin of ear. Distance between eyes, 36. Chest girth, 180. Longest fore claw, 10. Longest hind claw, 10.5.
- Specimens of Birds preserved:-
- No. 3373. Columba fasciata. Band-tailed Pigeon. ♂ ad. 370; 645; 205; 150; Culmen, 17; gape, 25.5; tarsus, 30; middle toe and claw, 40; claw, 11. Iris, bright hazel. Bill,

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orange-yellow, with a broad terminal band of black. Bare skin around eye, red. Tarsi and feet, straw-color; claws, black. Crop contained acorns which broke through the skin when it struck the ground in falling. The flesh is excellent food, having a pleasant nutty flavor.

No. 3374. Picicorvus columbianus. Ad. Clarke's Niteracker. 320; 580; 197; 128; culmen, 42; gape, 46; Tarsus, 36; middle toe & cl., 34; claw, 13. Iris, brown. Bill, legs, feet and claws, black. Crop filled with seeds of pines.

No. 3375. Hylocichla unalashkai audubonii. Rocky Mountain Hermit Thrush. Ad. 195; 324; 108; 80; bill, from nostril, 11.5; gape, 23; tarsus, 31; middle toe and claw, 22.5; claw, 5.3. Iris, hazel. Bill, brownish-black; flesh-color on base of mandible. Tarsi, flesh-color; feet, fleshy-brown; claws, dusky.

No. 3376. Parus montanus. Rock Mountain Chickadee. Ad. 134; 215; 70; 66; bill from nostril, ; culmen, 11; gape, 12; tarsus, 19; middle toe and claw, 15; claw, 5.5. Iris, hazel.

No. 3377. Sphyrapicus thyroideus. Black-breasted Woodpecker. Ad. 234; 425; 136; 100; culmen, 25; gape, 30; tarsus, 21.5; middle toe and claw, 23; claw, 9.5. Irides, reddish-brown. Bill, plumbeous-black; claws, black.

No. 3378. Buteo borealis calurus. Western Red-tail. Ad. 580; 1360; 420; 260; culmen and cere, 37; cere, 15; culmen, 26; tarsus, 78; middle toe and claw, 69; claw, 24; gape, 45. Iris, hazel. Cere and skin at gape, yellow. Bill, granish-blue at base, shading into plumbeous-black towards tip. Tarsi and feet, yellow; claws, black. Near General Spruce.

No. 3379. Sphyrapicus varius nuchalis. Red-naped Woodpecker. ♂ juv. 210; 386; 124; 80; culmen, 21.5; gape, 25; tarsus, 22; middle toe and claw, 23; claw, 9. Shot in a spruce wood in a ravine near the Lake Tanks.

October 6th, 1884. We left camp at Lake Tanks at daylight, and marched to a fork of Cañon Creek, 20 miles (Capt. Bourke called it 16 miles and Capt. Russell 23, which latter my Steward copied in making out my official report.) The region traversed was thickly wooded with pines and a few oaks, with no fir nor spruce. We passed a number of low, grassy spots, most of which contained a little standing water. Their margins are grown with aspens, whose leaves were changed to bright golden-yellow. In these marshy pools I saw the Leopard Frog (*Rana*

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which is so abundant in the waters of the Verde Valley, and a curious batrachian of small size having external gills which I never have seen before, and could not capture on account of the boggy, miry situation, into which my horse refused to go.

Mammals. - The only species seen were,

1. Thomomys talpoides umbrinus. Southern Pocket Gopher.
2. Canis latrans. Prairie Wolf; Coyote heard at night.

Notes. - The Indians who met us had killed several deer when guiding the Apache Pack-Train to our camp at the head of the fork of Cañon Creek where we found them awaiting our arrival, with a cargo of grain for the Com-mant. One of the skins was red or rufous instead of being gray like the rest of the deer seen on the trip. It may have been the Sonora Deer (Cervus mexicanus). It was nearly as large as the skin of an old doe killed by the Indians. This red deer was Odocoileus cuneatus.

Birds. - The following were observed viz:

1. Sialia mexicana. Californian Bluebird. Abundant.
2. Regulus calendula. Ruby-crowned Kinglet. "
3. Parus montanus. Rocky Mountain Chickadee. "
4. Sitta carolinensis aculeata. Slender-billed Nuthatch. "
5. Sitta pygmaea. Pigmy Nuthatch. "
6. Lund's *bird* auduboni. - Audubon's Warbler. "
7. Carduelis cassinii. Cassin's Purple Finch. Several flocks were seen, the first of this species that I have ever met with. They were singing pleasantly.
8. Passerculus savanna alaudinus. Western Savanna Sparrow. One seen near Camp 6 in a little marsh (or "savanna", whence its name. Improperly written "Savannah Sparrow") bordered by aspens and surrounded by pine-trees.
9. Spizella socialis arizonae. Western Chipping Sparrow. A few were seen under the pines, associated with flocks of Red-backed Snowbirds.
10. Junco dorsalis. Red-backed Snowbirds. Very abundant.
11. Corvus corax carinatus. American Raven. One pair.
12. Gymnocitta cyanocephala. Maximilian's Niteracker. One pair. A few flocks were seen along the way, feeding on seeds of the yellow pine (Pinus brachyptera).
13. Gymnocitta stelleri macrolopha. Long-crested Jay. Very common. One note resembles the Blue Jay's (Cyanocitta cristata). Its harshest note sounds as if produced with a tin horn.
14. Zonotrichia leucophrys. White-crowned Sparrow. One seen.

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15. *Picus villosus harrisi*. Harris's Woodpecker. Abundant.
 16. *Picus pubescens gairdneri*. Gairdner's Woodpecker. One was seen and shot, as it was skipping about among the terminal branches of the pines, much as Pinyon Nuthatches do. This, however, may not be characteristic, I have never seen this bird alive before to-day.

17. *Colaptes auratus mexicanus*. Red-shafted Flicker. A few scattered along the route.

18. *Scops asio trichopsis*. Mexican Screech Owl. One seen in a cleft of rock, on the rim-rock of Lonto Basin.

19. *Falco columbarius*. Common Hawk. Several seen.

20. *Buteo swainsoni*. Swainson's Hawk. One seen.

21. *Buteo borealis calurus*. Western Red-tail. Common.

22. *Meleagris gallopavo*. Mexican Turkey. Several broods killed out of a flock and Capt. Russell saw a flock.

Specimens of Birds Collected:

No. 3380. *Sitta pygmaea*. Pinyon Nuthatch. ♂ ad. Near the Lake Tanks. 110; 198; 62; 38; cul., 14.5; gape, 16.5; tarsus, 14.5; middle toe and claw, 15.5; claw, 6.

No. 3381. *Cyanocitta stelleri macrolopha*. Long-crested Jay. ♂ ad. Near the Lake Tanks. 302; 458; 143; 133; Culmen, 28; gape, 32.5; tarsus, 43; middle toe and claw, 32; claw alone, 9.5. Irides, hazel. Bill, tarsi and feet, black.

No. 3382. *Cyanocitta stelleri macrolopha*. Long-crested Jay. ♂ ad. Near the head of a fork of Cañon Creek, A. T. 310; 475; 143; 143 (also!); culmen, 28; gape, 33; tarsus, 45; middle toe and claw, 35; claw, 11. Colors as above.

No. 3383. *Picus pubescens gairdneri*. Gairdner's Woodpecker. ♂ ad. Near the head of a fork of Cañon Creek, A. T. 179; 315; 101; 73; culmen, 18; gape, 22; tarsus, 17; middle toe and claw, 19; claw, 9. Irides, reddish-brown. Bill, plumbeous-black. Tarsi and feet, plumbeous; claws, dusky.

No. 3384. *Carpodacus cassinii*. Cassin's Purple Finch. ♂ ad. Near head of a fork of Cañon Creek A. T. 163; 276; 86; 68; culmen, 12; gape, 15; tarsus, 19; middle toe and claw, 20; claw, 6. Irides, hazel.

No. 3385. *Carpodacus cassinii*. Cassin's Purple Finch. ♂ ad. Near head of a fork of Cañon Creek, Arizona. 162; 277; 86; 66; culmen, 12.5; gape, 16; tarsus, 20; middle toe and claw, 20; claw, 5. Irides, hazel.

No. 3386. *Leucotrichia leucophrys*. White-crowned Sparrow. ♂ ad. 170; 256; 81; 79; Culmen, 12.5; gape, 13.5; tarsus, 24; middle toe, 23; claw, 6.5.

October 7th, 1884. - Left camp at daybreak and marched to a fork of Cañon Creek between, Cañon Cr. and Cibola Creek, fifteen (15) miles. To-day the order of march changed. It was no longer "go-as-you-please" for the trail was difficult and we were obliged to keep the Indian guides in sight. After crossing a belt of rolling country well timbered with pine and oak we came to the edge of Lonto Basin where there was an old Indian trail down which we led our horses and we were fairly in Lonto Basin after a hard scramble down the steep, rocky slope. It was a long pull! Then we rode through a beautiful country, clothed with green grass and a scattered growth of pines until we came to Cañon Creek, a fine large stream, containing a number of fishes, frogs, and haunted by Kingfishers (*Ceryle alcyon*), which were here first seen on the trip. A Mormon settler had built a house and owned a lot of stock, beside the stream where we struck it. Some Seal and Brewer's Blackbirds (*Querquedula discors* et *Scelopophagus cyanocephalus*) were at the pond in front of the house before we came up and watered our horses. As no further halt was made, I was unable to procure any of the fishes or batrachians. We rode along the stream for a few miles and then turned to the left and crossed some high hills and then descended again until we reached camp on the "left fork" of Cañon Creek. Cañon Creek passes into a "box Cañon" in sight of the place where we left it. It is a very beautiful stream and region.

Mammals.

1. *Cervus macrotis*, Say. Mule Deer. The Indian guide, Peaches, fired at one at the head of the column.
2. *Tamias dorsalis* ? ~~*Tamias dorsalis*~~ *Gila* *leucopygia*.
3. *Thomomys talpoides umbrinus*. Southern Pocket Gopher.
4. Long-eared Bat.

Birds. - *Sciurus aberti*. Abert's Pine Squirrel. One shot. On the march to Camp 7 the following-named were seen:

1. *Sialia mexicana*. Californian Bluebird.
2. *Regulus calendula*. Ruby-crowned Kinglet.
3. *Parus montanus*. Rocky Mountain Chickadee.
4. *Sitta carolinensis aculeata*. Slender-billed Nuthatch.
5. *Dendroica auduboni*. Audubon's Warbler.
6. *Junco annectens*. Pink-sided Snowbird. First seen near

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Camp 7, where the species was found in abundance.

7. Junco dorsalis. Red-backed Snowbird.
 8. Corvus corax carnivorus. American Raven. One at Camp 6.
 9. Lymnocitta cyanocephala. Maximilian's Nuthacker.
 10. Picicorvus columbianus. Clarke's Nuthacker. One was seen on Cañon Creek.
 11. Cyanocitta stelleri macrolopha. Long-crested Jay.
 12. Ceryle alcyon. Belted Kingfisher. A pair in Tonto Basin on Cañon Creek. The first seen on the trip.
 13. Picus villosus harrisi. Harris's Woodpecker. Abundant.
 14. Asyndesmus torquatus. Lewis's Woodpecker. I found feathers at Camp 6 and saw several birds at camp 7.
 15. Colaptes auratus mexicanus. Red-shafted Flicker. Common.
 16. Accipiter fuscus. Sharp-shinned Hawk. One seen.
 17. Querquedula discors. Blue-winged Teal. Several small flocks were seen on Cañon Creek; the first were on a small pond at the Mormon rancho on Cañon Creek.
 18. Sceloporus cyanocephalus. Brewer's Blackbird. One flock at the Mormon's rancho on Cañon Creek.
- We encamped beside the stream near a little ravine in the foot-hills, and, having considerable time after reaching camp, I hunted carefully for specimens and noticed the following:-
- The only Mammal was the Rocky Mountain Pine-tailed Squirrel (Spermophilus grammurus) whose characteristic note was heard on all sides in the rocky places at the head of the ravine.
- Birds:-
1. Merula migratoria propinqua. Western Robin.
 2. Regulus calendula. Ruby-crowned Kinglet.
 3. Parus montanus. Rocky Mountain Chickadee.
 4. Sitta carolinensis aculeata. Slender-billed Nuthatch.
 5. Junco annectens. Pink-sided Snowbird. Common.
 6. Junco dorsalis. Red-backed Snowbird. "
 7. Spizella domestica arizonae. Western Chipping Sparrow.
 8. Lymnocitta cyanocephala. Maximilian's Nuthacker.
 9. Cyanocitta stelleri macrolopha. Long-crested Jay. As I lay upon the ground, listening to the call of some Larks that seemed to be approaching, one of these handsome Jays came within a few feet of me, flying from branch to branch until I could almost touch it as I lay patiently to be asleep. Their curiosity is great!
 10. Aphelocoma sordida arizonae. Arizona Jay. General Crook saw a flock of these birds when he first rode into camp, and I heard their note. I have

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never seen this day, and was unable to find them this afternoon; but the General tells me that we will be apt to see plenty of them during the next few days.

11. Sphyrapicus varius nuchalis. Nuchal Woodpecker. Two seen in the ravine.
12. Melanerpes formicivorus. Californian Woodpecker.
13. Asyndesmus torquatus. Lewis's Woodpecker. Common.
14. Scops asio trichopsis. Mexican Screech Owl. Crying around camp, after dark, while I sat up skinning specimens.
15. Meleagris gallopavo. Mexican Turkey. Captain Russell shot at a flock, and General Crook brought in a fine gobler. He could have called the flock but had lost his instrument for calling them. From the one shot, he provided himself with another "caller", made of the wing bone (radius) of the Turkey. The sound produced by passing air through this bone was very similar to the note of the Turkey.

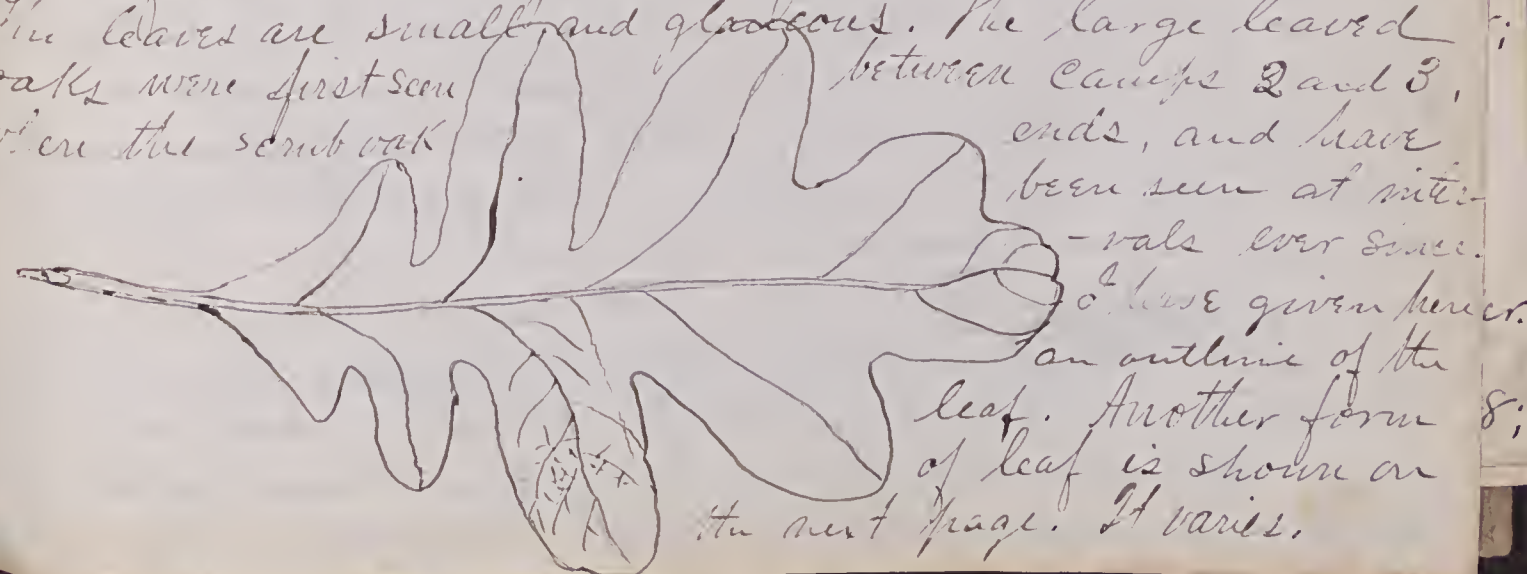
Note:- The Turkey (see Davis's "Conquest of New Mexico") was domesticated by the Aztecs in New Mexico and Arizona.

16. Columba fasciata. Band-tailed Pigeon.

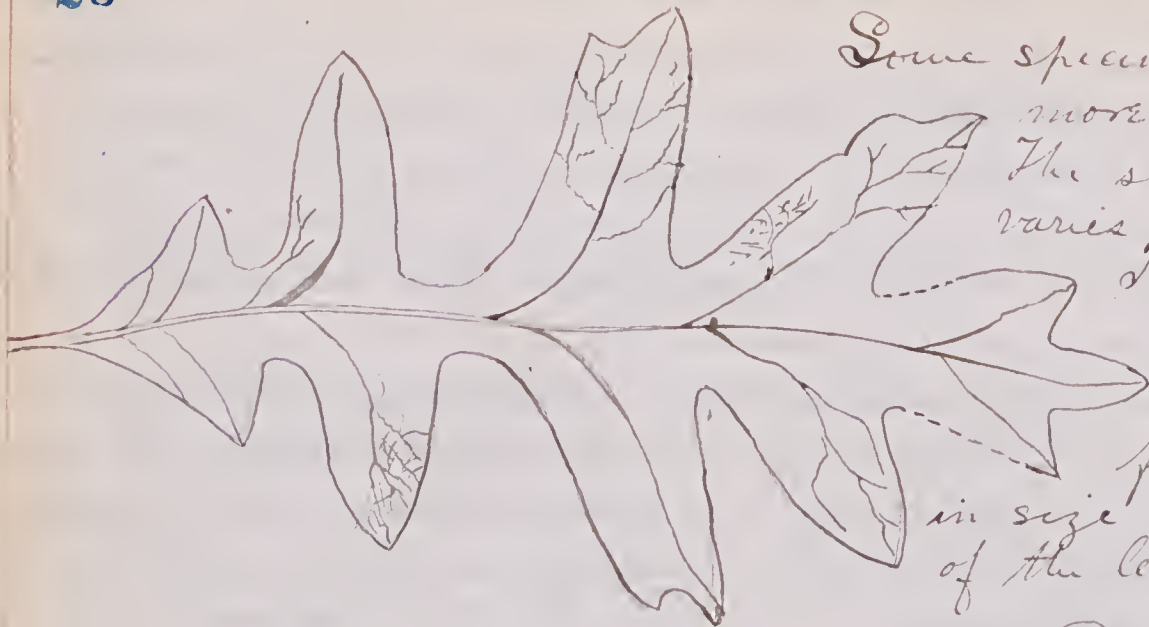
Botany:- A species of Veratrum with more slender leaves than V. viride grows along the creek at Camp 7. They were also seen in rich, damp ravines, between General Springs and our last camp.

A new species of Lark of delicate pink color was first seen to-day on Cañon Creek, where we again saw the Rough-barked Juniper, which had not been seen before to-day's march since between Mud Tanks and Baker's Butte, the only place where seen by us, before, on this trip.

Oak-trees of the small-leaved species (such as grows at Whipple) were first seen to-day, as we got down into Tonto Basin. The leaves are small and glaucous. The large leaved oaks were first seen between Camps 2 and 3, and have been seen at intervals ever since.



These given hence an outline of the leaf. Another form of leaf is shown on the next page. It varies.

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Some specimens have still more pointed lobes. The size of the leaf varies considerably I give below a third outline to exhibit still further the variation in size as well as form of the leaf of this Oak.



There are a few Douglass Spruces (*Abies douglasii*) here in the ravine at Camp 7. None were seen on the trail.

A new grape, probably only a local variety (*Vitis*) grows here. The vine is small, prostrate, with small leaves, and large (open bunches of) grapes, having a disagreeable flavor, perhaps because not quite ripe.

A pretty purple fleabane (*Erigeron*) grows here, and a bright purple Cranesbill (*Geranium*) and some new legumes that are handsome.

The Golden-rods (*Solidago*) are very fine.

The following species were collected:-

No. 140. *Sciurus aberti*. Abert's Pine Squirrel. ♀ ad. Cañon Creek, Tonto Basin, A. T. Total length, 553; head and body, 263. From tip of nose to end of outstretched hind-leg, 443; eye, 28; ear, 54; occiput, 66. Tail to end of vertebrae, 210; hairs, 290. Length of manus, 48; of pes, 66. Fore-leg to carpo-metacarpal joint, 54. Hind leg to tarso-metatarsal joint, 80. Height of ear from crown, 36; from meatus, 44; width, 28. Between eyes, 37. Chest-girth, 185. Ear-tips, 7. Longest fore claw, 10. Longest hind claw, 11.

Birds:

No. 3387. *Sphyrapicus varius nuchalis*. Red-naped Woodpecker. ♂ ad. 226; 408; 130; 94; culmen, 25; gape, 28; tarsus, 22; middle toe and claw, 22; claw alone, 9. Irides, reddish-hazel. Bill, dusky-plumbeous.

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Dimensions of specimens not preserved for lack of time:

1. *Micrula migratoria prokina*. Western Robin. No white whitewash on tail. 265; 435; 146; 122; bill, measured from nostril, 14; gape, 28; tarsus, 34; middle toe and claw, 30; claw alone, 7.5. Irides, hazel. Bill, brownish-black, slightly yellow at base of mandible. Legs, feet and claws, brownish-black; bottom of feet, yellowish. Not skinned.
2. *Junco annectens*. Pink-sided Snowbird. ♂ ad. 149; 238; 72; 69; culmen, 11.5; gape, 12.5; tarsus, 20; middle toe and claw, 18; claw alone, 5.5. Irides, hazel. Bill, flesh-color, very slightly tipped with blackish. Tarsi and feet, brown. Claws, dusky. Not skinned.
3. *Empidonax*. Flycatcher. ad. 145; 234; 72; 65. Bill, measured from nostril, 8; gape, 15; tarsus, 17; middle toe and claw, 14.5; claw alone, 5. Irides, hazel. Bill, brownish-black, with basal 2/3 of mandible, pale fleshy-brown. Tarsi, feet and claws, black.

October 8th, 1884. — The Command left the fork of Cañon Creek soon after daylight, and marched to the Indian village of Cibola Creek, twenty (20) miles. I remained behind to hunt for Turkeys and Arizona Jays. I saw no Turkeys, but was successful in getting the Jays, and saw a number of interesting animals and plants. The day's march was the pleasantest one of the trip. The trail was excellent, birds were abundant, and the part of Tonto Basin through which we rode was the most beautiful place that I ever saw. It seems little wonder that the Apaches were so brave and fierce in defending their beautiful home from the whites. The region traversed to-day is all included in the Apache Indian Reservation. The Command and pack-train were several hours in advance of the Steward and myself, and we often stopped to shoot, and to examine plants and other objects of interest. Some Apaches were seen galloping swiftly down upon us on their tough, wiry little horses as if they meant business. I guided my horse to the right and slipped buckshot cartridges into my gun, and the Indians reined up on my left. They were smiling, fine-looking fellows, and were eager for tobacco and matched with which Steward and I obligingly accommodated them. They were on a hunt

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While hunting, I was suddenly surprised by a deep-voiced "hello!" close at hand, and a naked Apache stepped out from behind a tree close-by, and began talking Apache. I replied "No sorry" and asked if he spoke English, to which he replied "No sorry" ^{English}. Then he held up four of his fingers and asked "You want Turkey?" (i.e. Turkey. The Apaches do not pronounce K at all). I said "yes". He asked me to follow, and I did so until I began to fear he was leading me astray or at least out of my way. I refused to go any farther. Then he shouted very loudly, and I heard the shrill, musical answer of an Indian woman. Then I followed him to a little rise of ground, and found there his hunting camp and family. He wanted me to buy any or all of four nice Turkeys which he had shot with his rifle through the body. I offered him his piece (una paca) (spelled as pronounced) meaning one piece or dollar for each Turkey, if he would carry them to our camp ("white-man's camp"). I had no money smaller than \$20 notes with me. The Indians seldom ask less than a dollar for any thing which they offer for sale. One dollar is the regular price of a Turkey at Fort Apache, and you pay your money and take your choice. As the distance was too great the Indian did not come in to camp with the Turkeys, for which I was sorry, as the men would have been glad to get them. Their field outfit consisted of a number of vessels for carrying water, and large baskets such as they carry corn in for the various articles of food which they gather. The woman had a large quantity of acorns, and the ground was covered with the fruit of the Spanish bayonet. She "cussed me out", however, when my horse accidentally stepped upon one and smashed it, and requested me to get away from her larder. They had plenty of deer meat and a number of Jack Rabbits. They were a handsome pair of Indians, the man particularly; and he was evidently an excellent hunter, while his wife was without doubt thrifty, and a "Bustler" as the Arizonians say.

As before remarked this day's march was peculiarly pleasant. The country was full of interest and beauty, and

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the trail excellent, while our horses were in good condition for travel. The balmy air, pleasant temperature and beautiful sunlight in the open forest were alone enough to make the ride enjoyable. At length we descended somewhat and began to see a few cedars and rough-barked junipers, and at length a few pines, all of which increased in numbers while the large pines were gradually left behind. Then we came out upon the brow of a hill where the Rio and Spanish bayonets and different species of cacti and shrubs usurped the soil; and we could see a wide range of country, hilly, with scattered woodlands chiefly of coniferous trees; and the country was rough, irregular and rocky. An endless number and variety of vegetation was encountered. We crossed a small stream, doubtless a tributary of the Cibien which contained little fishes and Toad and Frogs (Rana). For several miles the trail lay over the hills, until we came to the Indian settlement on the heights above the valley of Cibien, which commands a view of the fertile valley, in the vicinity of the village cultivated extensively. The stream was bordered with beautiful fields of corn and pumpkins. The women were polite in showing us the easiest trail; and their voices were extremely musical and pleasant. Some of the girls were quite handsome. The older women ugly as usual. These Indians begged General Crook to be allowed to come here and live on the reservation, which they were allowed to do conditionally, if they would be self-supporting. They are doing nicely, and appear to be very contented and happy, as they all expressed themselves in their palaver with the General. Cibien Creek contains the "Bony-tail" and several other species of small fishes, and the Toad and Frog (Rana) which we find at Fort Verde in abundance. I caught some specimens of fishes and a Horned Toad (Phrynosoma sp.). Herons, Blackbirds, Kingfishers and many small birds that are fond of water were seen along the Cibien; but I already had more birds than could be preserved, and so collected no more of them. The stream contained some deep

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holes where we enjoyed a bath, and then retired to the General's tent to listen to the "pou-wou".

Micky Free was the interpreter. He is mixed Irish and greaser, and has always lived with the Apaches, having been captured by them when a child.

Of Birds the following list was seen:-

1. Merula migratoria propinqua. Western Robin. Quite common along the march, in small flocks.
2. Sialia mexicana. Californian Bluebird. Common.
3. Regulus calendula. Ruby-crowned Kinglet.
4. Parus montanus. Mountain Chickadee.
5. Lophophanes inornatus. Plain Titmouse. Scarce. Not seen until we got through the pines near our camp (8) on Cibicu Creek, among groves of cedar and junipers.
6. Sitta carolinensis deileata. Slender-billed Nuthatch. Common in the pines.
7. Sitta pygmaea. Pigmy Nuthatch. Common in the pines.
8. Dendroica audubonii. Audubon's Warbler.
9. Peocetes gramineus confinis. Western Grass Finch.
10. Spizella socialis arizonae. Western Chipping Sparrow.
11. Junco annectens. Pink-sided Snowbird. A few were seen at Camp 7, gradually growing abundant as we descended during the day, while Junco dorsalis grew scarce as we got out of the pine forest.
12. Junco dorsalis. Red-backed Snowbird.
13. Zonotrichia leucophrys. A few were seen at our last camp on a fork of Cañon Creek.
14. Pipilo maculatus megalonyx. Long-spurred Towhee. A few were seen near our last camp. (Camp 7).
15. Corvus corax carnivorus. American Raven. One pair seen.
16. Corvus brachyotus. Common Crow. A few scattered individuals were seen along the way; and a large flock was found in the Indian's corn-fields on Cibicu Creek.
17. Symphoricarpa cyanocephala. Maximilian's Nuthatch; Pinon Jay. Enormous flocks of Nuthatches were seen in the park-like forests of pine. They fly low with loud, plaintive crying, continually alighting upon the ground, the rear rank constantly flying to the front, and so slowly moving from place to place. When they meet a Hawk they attack poor Buteo, and raise a frightful din.
18. Cyanocitta stelleri macrolopha. Long-crested Jay. All along the route abundant.

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19. Apeloeoma woodhousei. Woodhouse's Jay. One or two were seen at Camp 7, and their number increased all the way to the Cibicu.

20. Apeloeoma sordida arizonae. Arizona Jay. As noted yesterday, a flock of these large Jays was about our camping-ground on the left fork of Cañon Creek (Camp 7); but I did not find them last evening. This morning I remained at camp until after the rest all departed and hunted the ravine cautiously and thoroughly in hopes of finding either the Mexican Wild Turkey or Arizona Jay. The result was gratifying, for I saw the Jays in flocks of about half-dozen, and watched their antics. The notes the most curious thing about this Jay. It is totally unlike that of any other Arizona Jay. Their usual cry is an impetuous "Pe-we-we!", while its other notes are modifications of the same notes, uttered separately; and one cry is more Jay-like, but softer than Woodhouse's. They associate with Steller's Jay and Woodhouse's Jay. One or two flocks were seen during the day between camps 7 and 8.

21. Ceryle alcyon. Belted Kingfisher. A pair on the Cibicu, where small fishes are abundant, and supply it with suitable food.

22. Cicus villosus harrisi. Harris's Woodpecker. Only one seen.

23. Melanerpes formicivorus. Californian Woodpecker. Fairly abundant.

24. Asyndesmus torquatus. Lewis's Woodpecker. Very abundant all along the route. They delight to be constantly on the wing, and their flight is quite peculiar.

25. Sphyrapicus varius nuchalis. Red-naped Woodpecker. This beautiful species was common at Camp 7 and thence all along the way to the Cibicu.

26. Colaptes auratus mexicanus. Red-shafted Flicker. Very common.

27. Buteo borealis calurus. Western Red-tail. A few seen near Camp 8 on Cibicu Creek.

28. Meleagris gallopavo. Mexican Turkey.

29. Ardea herodias. Great Blue Heron. One seen on Cibicu Creek.

The following-named species of Mammals were seen:

1. Sciurus aberti. Abert's Pine Squirrel.
2. Thomomys talpoides umbrinus. Southern Pocket Gopher.
3. Spermophilus grammurus. Rocky Mountain Pine-tailed Squirrel.

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4. *Cervus macrotis* Say. White Deer. Indians had killed several.
5. *Lepus callotis texianus*. Indians encamped near the trail were provided with plenty of game - deer, turkeys & Jack Rabbits.

Specimens collected - Mammals:

- No. 141. *Sciurus aberti*. Abert's Pine Squirrel. ♂ ad. Shot between the left fork of Cañon Creek and Cibola Creek, A.T. Total length, 600. Head and body, 285. Tip of nose to end of outstretched hind-foot, 445; to eye, 28; ear, 52; occiput, 66. Tail to end of vertebrae, 235; hair, 315. Fore-arm, 53; fore-foot, 46; longest claw, 11. Leg, 82; hind-foot, 67; claw, 11. Height of ears above crown, 31; above crown, 39; width, 28; ear-tuft, 19. Chest girth, 175.

Birds collected. -

- No. 3388. *Appelocoma sordida arizonae*. Arizona Jay. ♀ ad. Left Fork of Cañon Creek, A.T. 330; 517; 165; 152; culmen, 24; gape, 35; tarsus, 45; middle toe and claw, 35; claw, 11. Irides, hazel. Bill, mottled black and yellow. Tarsi, feet and claws, black.

- No. 3389. *Appelocoma sordida arizonae* Arizona Jay. ♂ ad. Camp 7 on left fork of Cañon Creek, A.T. 340; 525; 168; 162; culmen, 30; gape, 36; tarsus, 44; middle toe and claw, 36; claw, 11. Colors of parts the same as above.

- No. 3390. *Asyndesmus torquatus*. Lewis's Woodpecker. ♂ juv. Between Cañon Creek and Cibola Creek, A.T. 275; 535; 167; 100; culmen, 27; gape, 35; tarsus, 25; middle toe and claw, 32; claw, 11.

- No. 3391. *Asyndesmus torquatus*. Lewis's Woodpecker. ♂ ad. Between Cañon Creek and Cibola Creek, A.T. 285; 550; 172; 109; culmen, 30; gape, 35; tarsus, 29; middle toe and claw, 30; claw, 11.

- No. 3392. *Columba fasciata*. Band-tailed Pigeon. ♂ ad. Between Cañon Creek and Cibola Creek, A.T. 365; 635; 207; 146; culmen, 18; gape, 24; tarsus, 29; middle toe and claw, 39; claw, 10. Colors the same as No. 3373.

October 9th, 1884. We left camp on Cibola Creek at sunrise and marched to Carrizo Creek, 18 miles. We traversed a rocky, wild region broken by small cañons. The trail led through a number of cañons and over some cedar-clad hills, whence we had a very fine view of the region, which is rugged and irregular, almost as pleasing in its diversity as the coniferous, turf-covered woodland through which we had been travelling for some days past. A number of new plants and flowers were seen, among them the first *Yuccas*. They had serrated leaves (*Diospyron wheeleri*).

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Carrizo Creek lies in a deep valley, to reach which we descended a long steep hill, over a fairly good trail. The hills were clothed with handsome small-leaved oaks and rough-barked pines and cedars. The Indian Village is situated upon the margin of the stream. Some of the young men engaged in a game, played with long slender poles and rings. In the creek some of the men caught a number of bony-tailed fish that abounds in most of the streams of the Gila system. It rained during the evening and night. The chief of the band of Indians living on Carrizo Creek told General Crook that he was ill and did not feel well enough to talk to him. He complained that he was bewitched by an Indian who had left Carrizo and sought refuge and protection with the Indians on the Cibola, where we had seen the fellow and heard his statement to the effect that it had been alleged that he had bewitched the Carrizo chief, and, knowing that they would kill him if he stayed there, he had cut loose and gone on to Cibola to seek retirement, until his ^{period of the} indisposition was passed.

Mammals observed. -

1. *Lepus callotis texianus*. Northern Jackass Hare. Scarce. I shot two and gave them to the soldiers on condition that they should return the skulls. I only preserved one of them, however (No. 352, ♂ ad.).
2. *Tamias ~~striatus~~ dorsalis*? Chipmunk. Several were seen in rocky cañons. They were probably variety *dorsalis*, the Gila Chipmunk.
3. *Spermophilus grammurus*. Rock Mountain Pine-tailed Squirrel. Several were seen in rocky cañons.
4. *Thomomys talpoides umbrinus*. Southern Pocket Gopher.

Birds observed. -

1. *Keylocichla analashkæ audubonii*. Rocky Mountain Hermit Thrush. One seen half-way between camp.
2. *Oreoscoptes montanus*. Sage Thrasher. A few seen and one shot.
3. *Sialia mexicana*. Californian Bluebird. Abundant.
4. *Regulus calendula*. Ruby-crowned Kinglet. "
5. *Lophophanes inornatus*. Plain Titmouse. "
6. *Sitta carolinensis aculeata*. Slender-billed Nuthatch. A few.
7. *Myiadestes townsendi*. Townsend's Solitaire. Several were seen in a little cañon. They have a very clear, sweet call-note, and were singing exquisitely. One that I shot, crawled under some roots on the edge of the bank and escaped.

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8. Dendroica audubonii. Audubon's Warbler. A few seen.
9. Pyrranga ludoviciana. Western Tanager. One was shot; the only one seen on the trip.
10. Poocetis gramineus confinis. Western Grass Finch. Common in some spots.
11. Peucaea. A few were seen in patches of scrub oaks.
12. Junco oregonus. Oregon Snowbird. Very abundant.
13. Spizella domestica arizonae. Western Chipping Sparrow.
14. Pipilo maculatus megalonyx. Long-spurred Towhee. Abundant all the way.
15. Zonotrichia leucophrys. White-crowned Sparrow. Abundant in places.
16. Astragalinus psaltria. Green-backed Goldfinch. These pretty birds were eating the seeds of sunflowers and singing.
17. Agelaius phoeniceus. Red-and-buff-shouldered Blackbird. One female was seen beside a little streamlet.
18. Scelopophagus cyanocephalus. Brewer's Blackbird. Large flocks were seen at our camp at Cibicu, and at Carrizo Creek, a very large flock came down. One bird was white. General Crook and I both tried to shoot it, but did not succeed.
19. Corvus corax carnivorus. American Raven. Flocks of Ravens were seen all along the way.
20. Corvus frugivorus. Common Crow. Flocks were seen in the corn-fields on Cibicu Creek, and one or two were seen en route to and at Carrizo Creek.
21. Lymnecitta cyanocephala. Maximilian's Nuthatch. Large flocks, some containing hundreds of individuals, were seen all along the road.
22. Cyanocitta stelleri macrolopha. Long-crested Jay. Exceedingly abundant all along the way.
23. Apelocoma woodhousei. Woodhouse's Jay. Common all the way.
24. Apelocoma sordida arizonae. Arizona Jay. Abundant all along the way. One was shot with fruit dust shot. It came and alighted in a dry cedar within a few feet of me and looked at me intently. I was uttering a screeching sound, trying to call some little birds to me.
25. Picus villosus harrisi. Harris's Woodpecker. One.
26. Stelgidopteryx serripennis nuchalis. Red-nape Woodpecker. Very abundant.
27. Melanerpes formicivorus. Californian Woodpecker. Abundant.

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28. Asyndesmus torquatus. Lewis's Woodpecker. Quite plentiful.
29. Colaptes auratus mexicanus. Red-shafted Flicker. Abundant all the way.
30. Buteo borealis calurus. Western Red-tail. Several pairs seen.
31. Falco columbarius. Pigeon Hawk. One was seen to strike a Flicker. I was riding within a rod of the Flicker, when the Hawk dashed it from the branch; but could not hold fast to it; and the terrified Woodpecker flew screaming into the brushwood, with the enemy in hot pursuit.
32. Columba fasciata. Band-tailed Pigeon. In flocks numbering from 25 to 100. More abundant than hitherto. In the pineries they were single or in pairs, or threes. In the cedars and junipers lower down (yesterday), a few flocks of 5 or 10 were seen. To-day they were in large flocks. The timber along the route was juniper, "cedar", fir, and a few pines and piñon, together with abundant oak-trees both deciduous (like those noted on p. 25) and live oaks.
33. Lophortyx gambeli. Gambel's Quail. One flock was seen to-day, between camps 8 and 9. Captain Roberts shot one. These were the first seen since we left Lerar Creek, October 2nd; but General Crook thought he heard some just before we reached Cibicu Creek.
34. Trochilus alexandri. Black-chinned Hummingbird. General Crook saw a female, the only Hummer seen on the entire expedition.
35. Melospiza fasciata. Song Sparrow. A number were found along Carrizo Creek at Camp 9.
- Specimens of Birds Collected:
- No. 3393. Apelocoma sordida arizonae. Arizona Jay. ♂ ad. Between Cibicu Creek and Carrizo Creek, A. S. 335; 510; 172; 158; culmen, 30; gape, 36; tarsus, 41; middle toe and claw, 36; claw, 11.
- No. 3394. Pyrranga ludoviciana. Western Tanager; Crimson-headed Tanager; Louisiana Tanager, ♂ juv. Between Cibicu Creek and Carrizo Creek, A. S. 185; 296; 92; 72; culmen, 15; nostril, 11; gape, 19; tarsus 17.5; middle toe and claw, 17; claw alone, 5.3.
- No. 3395. Asyndesmus torquatus. Lewis's Woodpecker. ♂ ad. Between Cibicu Creek and Carrizo Creek, A. S. 287; 527; 168; 104. Culmen, 29.5; gape, 34; tarsus, 28;

October 10th.middle toe (i.e. 3rd) and claw, 30; claw, 11.

October 10th, 1884. - Marched to Forestdale Indian Settlement, 20 miles. We started late, as it was raining when we awoke, and we did not leave until it cleared. The Carrizo is about the size of Clear Creek which empties into the Verde River about 4 miles south of Fort Verde. Shortly after leaving the Carrizo we came to a large branch of it called Corduroy, which flows through a deep, beautiful cañon, wooded with cottonwoods like those at Fort Verde, and another handsome tree like those in general appearance, but more erect in habit, with narrow, lanceolate leaves. Captain Roberts tells me that this is the cottonwood of higher altitudes in this country. These were the first Verde cottonwoods seen on the trip; but on the mountains, in the pines, we saw groves of medium-sized aspens (*Populus tremuloides*).

The following named species of Birds were seen: -

1. *Hylocichla unalascensis auduboni*. Rocky Mountain Hermit Thrush. One was seen at our camp beside the Carrizo, and one or two more before we reached the Corduroy.
2. *Merula migratoria propinqua*. Western Robin. One or two near Carrizo Creek.
3. *Sialia mexicana*. Californian Bluebird. Common.
4. *Myiadestes townsendi*. Townsend's Solitaire. A few heard singing, in a deep cañon, a beautiful song. These are the first I have ever seen alive - these and those of yesterday. They make a whurring sound like a Woodpecker when flying from branch to branch.
5. *Regulus calendula*. Ruby-crowned Kinglet. A few.
6. *Tophophanes inornatus*. Plain Titmouse. A few were seen in cedars.
7. *Sitta pygmaea*. Pigmy Nuthatch. None were seen until we reached the pine forest near Forestdale.
8. *Sitta carolinensis aculeata*. Slender-billed Nuthatch. Three were all I saw during the day.
9. *Dendroica auduboni*. Audubon's Warbler. Common.
10. *Geothlypis trichas*. *passerinus perpallidus*. A few were startled from the grass beside the trail across the mesa above the Rio Corduroy. Note, a loud "cheep".
11. *Zonotrichia leucophrys*. White-crowned Sparrow.
12. *Spizella socialis arizonae*. Western Chipping Sparrow. Common.
13. *Junco oregonus*. Oregon Snowbird. Common.
14. *Melospiza fasciata*. Song Sparrow.

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In the reeds beside the Carrizo (the name signifies reed) were a number of these birds.

15. *Astragalinus psaltria*. Green-backed Goldfinch. Large flocks in the creek bottom at Carrizo, feeding upon seeds of sunflowers; also seen occasionally along the route.

16. *Pipilo maculatus megalonyx*. Long-spurred Towhee. Common in places.

17. *Corvus corax*. Carrion. American Raven. Common.

18. *Corvus frugivorus*. Common Crow. A few on the creek bottom at Carrizo.

19. *Geococcyx cyanocephalus*. Brewer's Blackbird. The flock was still at Carrizo. General Crook shot at the white bird, but did not kill the right one, although several others were killed.

20. *Gymnocitta cyanocephala*. Maximilian's Nutcracker. Common all the way, but in small flocks.

21. *Cyanocitta stelleri macrolopha*. Long-crested Jay. Very common all along the route.

22. *Appeloeoma woodhousei*. Woodhouse's Jay. Common until we got on higher ground, out of the cedars and into the pines. I met with an accident when trying to get one of these birds which I shot. It fell into a cañon. I walked up to the edge of it to look down, when a large rock rolled with me, and I went to the bottom. A stone struck me on the head and another on the shoulder; but I received no permanent injury, although I was very sore and stiff.

23. *Appeloeoma dorsalis arizonae*. Arizona Jay. Several were seen before we left the Corduroy.

24. *Picus villosus harrisi*. Harris's Woodpecker. A few.

25. *Melanerpes formicivorus*. Californian Woodpecker. Common as soon as we reached the pines.

26. *Axydesmus torquatus*. Lewis's Woodpecker. They were common in the pines, and their notes, when flying in flocks, were like the 2 Squirrels.

27. *Colaptes auratus mexicanus*. Red-shafted Flicker. Common all the way.

28. *Asio columbianus*. Pigeon Hawk. One was seen near Carrizo Creek.

29. *Coturnix montezumae*. Massena Quail; Foolish Quail. The General saw three.

30. *Ceryle alcyon*. Belted Kingfisher. Several were fishing in the Carrizo.

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31. Sayornis sayi. Say's Pewee. One was shot on the mesa above Corduroy. As I was picking it up, it flew, and circled about for several minutes, rising higher and higher until it finally disappeared in the distance.

32. Nettion carolinensis. Green-winged Teal. One seen of Carrizo Creek.

No Mammals were seen.

Specimens of Birds Collected:—

No. 3396. Asyndesmus torquatus. Lewis's Woodpecker.
♀ ad. Near Forestdale, A. T. 272; 520; 165; 112;
culmen, 27; gape, 33; tarsus, 23; mte., 27; cl., 10.

No. 3397. Asyndesmus torquatus. Lewis's Woodpecker.
♂ ad. Near Forestdale, A. T. 280; 540; 175; 106; culmen,
29; gape, 35; tarsus, 26; middle toe and claw, 30;
claw alone, 11.

all blank to p. 310.

A Catalogue of Medicinal Plants

Growing Wild in the Hudson Highlands, N. Y.

By Edgar A. Mearns, M. D.,

Assistant Surgeon, U. S. A.

[December 10th, 1884.]

Note.—The number in parenthesis following the name, refers to the page in the last (fifteenth) edition of the United States Dispensatory, published in 1883, where the plant and its medicinal virtues are treated of.

1. *Clematis Virginia*, L. Common Virginia-Bower. (p. 1612.)
2. *Anemone nemorosa*, L. Wind-flower; Wood Anemone. (p. 1195.)
3. *Hepatica triloba*, Chaix. Round-lobed Hepatica. (p. 1663.)
4. *Ranunculus bulbosus*, L. Bulbous Crowfoot; Buttercup. (p. 1738.)
5. *Ranunculus acris*, L. Tall Crowfoot or Buttercup. (p. 33 and 1738.)
6. *Cimicifuga racemosa*, Ell. Black Snakeroot. (p. 423.)
7. *Liriodendron tulipifera*, L. Tulip-tree. (p. 1687.)
8. *Menispermum Canadense*, L. Canadian Moonseed. (p. 939 and 1614.)
9. *Caulophyllum thalictroides*, Michx. Blue Cohosh; Pappoose-root. (p. 380.)
10. *Podophyllum peltatum*, L. May-Apple; Mandrake. (p. 1138.)
11. *Nymphaea odorata*, Ait. Sweet-scented Water-Lily. (p. 1711.)
12. *Sarracena purpurea*, L. Side-saddle Flower; Pitcher-Plant; Huntsman's cup. (p. 1746.)
13. *Sanguinaria Canadensis*, L. Blood-root. (p. 1266.)
14. *Cardamine pratensis*, L. Cuckoo Flower. (p. 1597.)
15. *Sisymbrium officinale*, Scop. Hedge Mustard. (p. 150.)
16. *Viola cucullata*, Ait. Common Blue Violet. (p. 1538.)
17. *Viola odorata*, L. Sweet or English Violet. (p. 1538.)
18. *Viola tricolor*, L. Pansy; Heart's-ease. (p. 1538.)
19. *Helianthemum Canadense*, Michx. Rock-rose; Frost-weed. (p. 1660.)
20. *Drosera rotundifolia*, L. Round-leaved Sundew. (p. 1656.)
21. *Hypericum perforatum*, L. Common St. John's-wort. (p. 1666.)
22. *Saponaria officinalis*, L. Common Soapwort; Bouncing Bet. (p. 1745.)
23. *Althaea officinalis*, L. Common Marsh-Mallow. (p. 158.)
24. *Malva rotundifolia*, L. Common Mallow. (p. 1691.)
25. *Geranium maculatum*, L. Wild Cranesbill. (p. 709.)

26. *Geranium Robertianum*, L. Herb Robert. (p. 1652.)
27. *Impatiens fulva*, Nutt. Spotted Touch-me-not. (p. 1669.)
28. *Oxalis violacea*, L. Violet Wood-Sorrel. (pp. 89 and 1517.)
29. *Zanthoxylum Americanum*, Miller. Northern Prickly Ash. (p. 1539.)
30. *Rhus glabra*, L. Smooth Sumach. (p. 1244.)
31. *Rhus venenata*, L. Poison Sumach or Dogwood. (p. 1245.)
32. *Rhus Toxicodendron*, L. Poison Ivy; Poison Oak; (p. 1245.)
33. *Ampelopsis quinquefolia*, Michx. Virginian Creeper. (p. 1777.)
34. *Celastrus scandens*, L. Wax-work; Climbing Bitter-sweet. (pp. 1561 and 1602.)
35. *Acer saccharinum*, Wang. Sugar or Rock Maple. (p. 1256.)
36. *Baptisia tinctoria*, R. Br. Wild Indigo. (p. 1581.)
37. *Cassia Marilandica*, L. Wild Senna. (p. 1600.)
38. *Prunus Virginiana*, L. Choke-cherry. (p. 1192.)
39. *Prunus serotina*, Ehrhart. Wild Black Cherry. (p. 1193.)
40. *Spiraea tomentosa*, L. Hardhack; Staple-Bush. (p. 1752.)
41. *Potentilla Canadensis*, L. Common Cinque-foil or Five-Finger. (p. 1769.)
42. *Rubus strigosus*, Michx. Wild Red Raspberry. (p. 1250.)
43. *Rubus occidentalis*, L. Black Raspberry; Himbeberry.
44. *Rubus villosus*, Ait. Common or High Blackberry. (p. 1249.)
45. *Rubus Canadensis*, L. Low-Blackberry; Dewberry. (p. 1249.)
46. *Saxifraga Virginiana*, Michx. Early Saxifrage. (p. 1728.)
47. *Heuchera Americana*, L. Common Alum-root. (p. 1664.)
48. *Hamamelis Virginica*, L. Witch-hazel. (pp. 736 and 1654.)
49. *Epilobium angustifolium*, L. Great Willow-herb. (p. 1638.)
50. *Oenothera biennis*, L. Common Evening-Primrose. (p. 1712.)
51. *Lythrum Salicaria*, L. Spiked Loosestrife. (p. 1690.)
52. *Daucus Carota*, L. Common Carrot. (p. 1598.)
53. *Cicuta maculata*, L. Spotted Cowbane; Musquash Root; Beaver-Poison. (p. 1611.)
54. *Aralia racemosa*, L. Spikenard. (p. 1575.)
55. *Aralia nudicaulis*, L. Wild Sarsaparilla. (p. 1575.)
56. *Cornus florida*, L. Flowering Dogwood. (p. 494.)
57. *Cornus sericea*, L. Silky Cornel; Kinnikinnick. (p. 495.)
58. *Friostemum perfoliatum*, L. Horse-Lentian. (p. 1770.)
59. *Sambucus Canadensis*, L. Common Elder. (p. 1265.)

60. *Cephalanthus occidentalis*, L. Button-bush. (p. 1603.)
 61. *Mitchella repens*, L. Partridge-berry. (p. 1700.)
 62. *Eupatorium purpureum*, L. Joe-Pye Weed;
 63. *Eupatorium purfoliatum*, L. Thoroughwort;
 Bonaset. (p. 569.)
 64. *Aster puniceus*, L. Aster. (p. 569.)
 65. *Solidago bicolor*, L. White Golden-rod. (p. 1751.)
 66. *Solidago Virga-aurea*, L. Mountain Golden-rod.
 (p. 1751.)
 67. *Solidago odora*, Ait. Sweet Golden-rod. (p. 1751.)
 68. *Inula Helenium*, L. Common Elecampane (p. 799.)
 69. *Ambrosia artemisiifolia*, L. Roman Wormwood;
 Hoag-weed; Bitter-weed; Ragweed. (p. 1568.)
 70. *Zidens bipinnata*, L. Spanish Needles. (p. 1588.)
 71. *Helenium autumnale*, L. Sneezeweed. (p. 1660.)
 72. *Maruta Cotula*, L. Common May-weed. (pp. 934 and 1625.)
 73. *Achillea Millefolium*, L. Common Yarrow or
 Milfoil. (p. 1560.)
 74. *Tanacetum vulgare*, L. Common Tansy. (p. 1422.)
 75. *Gnaphalium polycephalum*, Michx. Common
 Everlasting. (p. 1573.)
 76. *Antennaria margaritacea*, R. Brown. Pearly Everlasting.
 (p. 1573.)
 77. *Erechtites hieracifolia*, Raf. Firewood. (p. 1638.)
 78. *Senecio aureus*, L. Golden Ragwort; Squaw-weed.
 (p. 1748.)
 79. *Lappa officinalis*, Allioni. Burdock. (pp. 843 and 1682.)
 80. *Cichorium Intybus*, L. Succory or Cichory. (pp. 1424
 and 1610.)
 81. *Hieracium venosum*, L. Rattlesnake-weed. (p. 1664.)
 82. *Taraxacum Dens-leonis*, Desf. Common Dandelion.
 (p. 1423.)
 83. *Lobelia cardinalis*, L. Cardinal-flower. (p. 904.)
 84. *Lobelia inflata*, L. Indian Tobacco (p. 902.)
 85. *Vaccinium macrocarpon*, Ait. Large or American
 Cranberry. (p. 1626.)
 86. *Epigaea repens*, L. Trailing Arbutus. (p. 1637.)
 87. *Saunderia procumbens*, L. Creeping Wintergreen.
 (pp. 98 and 1011.)
 88. *Kalmia latifolia*, L. Calico-bush; Mountain Laurel;
 Spoon-wood. (p. 1678.)
 89. *Kalmia angustifolia*, L. Sheep Laurel; Lambkill. (p. 1678.)
 90. *Kalmia glauca*, Ait. Pale Laurel. (p. 1678.)

91. *Chimaphila umbellata*, Nutt. Prince's Pine;
 Pipsissewa. (p. 402.)
 92. *Chimaphila maculata*, Pursh. Spotted Wintergreen. (p. 402.)
 93. *Ilex verticillata*, Gray. Black Alder; Winterberry. (p. 1191.)
 94. *Catalpa bignonioides*, Walt. Catalpa. Indian Bean. (p. 1601.)
 95. *Verbascum Thapsus*, L. Common Mullin. (pp. 284
 and 1776.)
 96. *Linaria vulgaris*, Will. Toad-Flax; Butter-and-eggs;
 Ranunc. (p. 1573.)
 97. *Chelone glabra*, L. Turtle-head; Snake-head. (p. 1604.)
 98. *Veronica officinalis*, L. Common Speedwell. (p. 1776.)
 99. *Mentha viridis*, L. Spearmint. (p. 940.)
 100. *Mentha Piperita*, L. Peppermint. (p. 939.)
 101. *Cunila Mariana*, L. Common Dittany. (p. 1628.)
 102. *Collinsonia canadensis*, L. Horse-Balm;
 Rich-weed; Stone-root. (p. 1616.)
 103. *Nepeta Cataria*, L. Catnip. (p. 1601.)
 104. *Cynoglossum officinale*, L. Common Hound's-Tongue.
 (p. 1631.)
 105. *Solanum Dulcamara*, L. Bittersweet. (p. 529.)
 106. *Solanum nigrum*, L. Common Nightshade. (p. 529.)
 107. *Physalis viscosa*, L. Ground Cherry. (p. 1726.)
 108. *Satura Stramonium*, L. Common Stramonium;
 Thorn Apple. (p. 1363.)
 109. *Thymus trifoliatus*, L. Buckbean. (p. 1698.)
 110. *Apocynum androsaemifolium*, L. Spreading Dogbane. (p. 210.)
 111. *Apocynum cannabinum*, L. Indian Hemp.
 (pp. 210, 338 and 1443.)
 112. *Asclepias cornuti*, DeCaisne. Common Milkweed
 or Silkweed. (p. 1578.)
 113. *Asclepias incarnata*, L. Swamp Milkweed. (pp. 260
 and 1578.)
 114. *Asclepias verticillata*, L. Whorled Milkweed
 (p. 1579.)
 115. *Phytolacca decandra*, L. Common Poke or Seck;
 Target; Pigeon-Berry. (p. 1100.)
 116. *Passiflora officinale*, Nees. Passiflora. (p. 1285.)
 117. *Ulmus fulva*, Michx. Slippery or Red Elm. (p. 1487.)
 118. *Ulmus Americana*, L. (pl. delat.), Willd. American or
 White Elm. (p. 1487.)
 119. *Morus rubra*, L. Red Mulberry. (p. 952.)
 120. *Juglans cinerea*, L. Butternut. (p. 825.)
 121. *Juglans nigra*, L. Black Walnut. (p. 825.)

122. *Carya alba*, Nutt. Shell-bark or Shag-bark Hickory. (p. 1599.)
 123. *Carya tomentosa*, Nutt. Mockernut; White-heart Hickory. (p. 1599.)
 124. *Carya amara*, Nutt. Bitter-nut; Swamp Hickory. (p. 1599.)
 125. *Quercus alba*, L. White Oak. (p. 1209.)
 126. *Quercus prinus*, L. Chestnut-Oak. (p. 1209.)
 127. *Quercus coccinea*, var. *tinctoria*. Quercitron, Yellow-barked or Black Oak. (p. 1209.)
 128. *Castanea vesca*, L. Chestnut. (p. 370.)
 129. *Corylus rostrata*, Ait. Beaked Hazel-nut. (p. 1624.)
 130. *Comptonia asplenifolia*, Ait. Sweet-Fern. (p. 1617.)
 131. *Betula lenta*, L. Cherry Birch; Sweet or Black Birch. (p. 1587.)
 132. *Betula alba*, var. *populifolia*, Spach. American White Birch. (p. 1587, variety *alba*.)
 133. *Alnus serrulata*, Ait. Smooth Alder. (p. 1568.)
 134. *Pinus rigida*, Miller. Pitch Pine. (pp. 1124 and 1427.)
 135. *Pinus strobus*, L. White Pine. (p. 1427.)
 136. *Abies nigra*, Poir. Black or Double Spruce. (p. 1427.)
 137. *Abies canadensis*, Michx. Hemlock Spruce. (p. 1123.)
 138. *Abies excelsa*. Norway Spruce. (pp. 1122 and 1427.)
 139. *Thuja occidentalis*, L. American Arbor Vitae. (p. 1432.)
 140. *Juniperus communis*, var. *alpina*, L. Common Juniper. (pp. 826 and 1030.)
 141. *Juniperus virginiana*, L. Red Cedar. (pp. 392, 826 and 1253.)
 142. *Taxus canadensis*, L., var. *canadensis*. American Yew; Ground Hemlock. (p. 1762.)
 143. *Arisaema triphyllum*, Torr. Indian Turnip. (p. 1577.)
 144. *Symplocarpus fortidus*, Salist. Skunk Cabbage. (p. 1635.)
 145. *Acorus calamus*, L. Sweet Flag; Calamus. (p. 311.)
 146. *Alisma Plantago*, L., var. *Americanum*. American Water-Plantain. (p. 1567.)
 147. *Orchis spectabilis*, L. Showy Orchis. (p. 1744.)
 148. *Corallophiza odontorhiza*, Nutt. Coral-root. (p. 1621.)
 149. *Cypripedium parviflorum*, Salist. Smaller Yellow Lady's Slipper. (p. 514.)
 150. *Cypripedium pubescens*, Willd. Larger Yellow Lady's Slipper. (p. 514.)
 151. *Cypripedium acaule*, Ait. Stemless Lady's Slipper or Moccasin-flower. (p. 514.)

152. *Iris versicolor*, L. Larger Blue Flag. (p. 819.)
 153. *Lioscorea villosa*, L. Wild Yam-root. (p. 1634.)
 154. *Smilax rotundifolia*, L. Common Greenbrier. (p. 1280.)
 155. *Trillium erectum*, L. Purple Trillium or Birthroot. (pp. 1769 and 1770.)
 156. *Medeola virginica*, L. Indian Cucumber-root. (p. 1696.)
 157. *Veratrum viride*, Ait. American White Hellebore; Indian Poke. (pp. 1519 and 1775.)
 158. *Asparagus officinalis*, L. Garden Asparagus. (p. 1579.)
 159. *Erythronium Americanum*, Smith. Yellow Adder's-tongue; Dog's-tooth lily. (p. 1639.)
 160. *Triticum repens*, L. Couch, Quitch, or Quick-Grass. (p. 1478.)
 161. *Equisetum hyemale*, L. Scouring-Rush; Shave-Grass. (p. 1638.)
 162. *Adiantum pedatum*, L. Maidenhair. (p. 1561.)
 163. *Pteris aquilina*, L. Common Brake. (pp. 1580 and 1698.)
 164. *Asplenium Trichomanes*, L. Dwarf Splachwort. (p. 1580.)
 165. *Asplenium Filix-foemina*, Bernh. (pp. 262 and 1580.)
 166. *Aspidium marginale*, Swartz. Marginal Shield-Fern. (p. 261.)
 167. *Lycopodium clavatum*, L. Common Club-Moss. (p. 905.)

Memorandum of Society Memberships:-

Elected a Corresponding Member of the Nuttall Ornithological Club February 4, 1878.

Elected Corresponding Member of Linnaean Society of New York, on March 16, 1878. Elected an Active Member

Became a member and "founder" of the American Ornithologists' Union on September 26, 1883.

Elected a Member of the Ottawa (Canada) Field Naturalists' Club December 9, 1889.

Capilio Daunus, Bd. is the common yellow-
and-black butterfly of Fort Verde, Arizona.

?, (33?)

Lepus callotis

Lepus texianus 3, 5, 8, 28, 32, 33,

Erithizon dorsatus epixanthus

Castor fiber canadensis

Dipodomys phillipsi ordi

Thomomys talpoides umbrinus 5, 8, 12, 16, 21, 23, 31, 33,

Sciurus hudsonius fremonti 12, 12, 14, 16, 19

Sciurus aberti 8, 10, 12, 14, 15 (measurements No. 133), 15, 16, 19, 26, 31, 32,

Sciurus arizonensis

Tamias asiaticus quadrivittatus 10, 11, 12, 14, 15 (measurements of No. 134), (23?), (33?)

Tamias dorsalis 5, (23?) (33?)

Tamias harrisi 3,

Tamias lateralis

Spermophilus grammurus 24, 31, 33,

Spermophilus tereticaudus

Cynomys columbianus

Mus decumanus

Mus musculus

Dicotyles torquatus

Cervus canadensis 9,

Cariacus leucurus crooki et mexicanus 21,

Cariacus macrotis montana 5, 8, 11, 12, 16, 21, 23, 28, 32,

Antilocapra americana 5,

Ovis montana

Canis familiaris (Indian Dog)

Long-eared Bat

Large Brown Bat

Little Brown Bat

Red Bat, and all other spp.

Sorex

Moles (all spp.)

Felis concolor

Lynx rufus maculatus

Lynx canadensis (or other species than the above)

Bassaris astuta

Canis lupus occidentalis

Canis latrans 12, 15, 21,

Vulpes velox

Urocyon cinereo-argentatus

Gulo luscus

Putorius braziliensis frenatus

Mephitis mephitis

Mephitis interrupta

Conepatus mapurito

Taxidea americana berlandieri

Lutra canadensis

Procyon hernandezii

Ursus horribilis

Ursus americanus 8, 12,

Neotoma mexicana

Hesperomys leucopis sonoriensis

Hesperomys leucopis eremicus

Hesperomys leucogaster torridus

Arvicola ?

Sigmodon hispidus arizonae

Fiber zibethicus

Lepus sylvaticus nuttalli

Lepus sylvaticus arizonae 3,

Papilio Daunus, Bd. is the common yellow-
and-black butterfly of Fort Verde, Arizona.

